The Soybean Digest

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AMERICAN SOYBEAN ASSOCIATION

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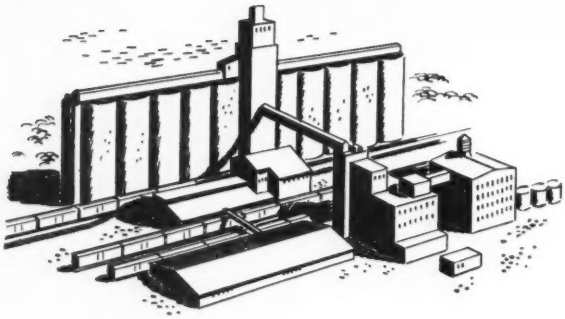

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THE *Soybean Digest*

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IN THIS ISSUE

EDITOR'S DESK

AGRICULTURE'S STORY GOES UNTOLD

What will the ceiling price on soybeans be? On oil? And on soybean oil meal? Everyone would like to know—and apparently no-one does know. Current thinking in Washington, as indicated in Porter Hedge's column elsewhere in this issue, runs about $3.20 basis Chicago.

There is great confusion, however, pertaining to ceiling prices on all agricultural commodities. Newspaper columnists, radio commentators and others have been hammering on the fact that agricultural commodity ceilings, under the present law, must be set at either the parity price or the price during the May-June period, whichever is higher. With the opening of the new session of Congress there will be clamor to change this basis.

Strangely, labor unions and others are pointing to high food prices at a time when supplies are greater and prices far lower than during 1948. Yet wages are higher and hours shorter than during that period. Food costs as compared with income are much lower. Because agricultural prices happened to move downward during a period when other items increased, certain groups would now have the farmer penalized.

And to our great regret no group or agency is now telling the story in a bold, unashamed fashion. We are allowing statements which are totally incorrect to go unchallenged. We need a united front for agriculture—a Chamber of Commerce promotional campaign to tell the story as it actually exists. And in that story, when it is told, must be brought out the fact that inherently *soybeans are worth more money*, AND that they must be kept in their correct price relationship with other commodities or there will be a far-too-great shrinkage of acreage in 1951.

THE CASE FOR CHANGING STANDARDS

On page 6 in this issue you will find an announcement of a series of public hearings being held by the grain branch of PMA on the proposals made by the American Soybean Association in a resolution adopted at the 30th annual convention last August. Basically, those proposals would lower the permissible foreign material content of soybeans by one percent for each grade, and would lower the permissible moisture content by the same amount.

Public hearings are held so that all segments of the industry may be represented to present their viewpoints. Growers, handlers, processors and terminal elevator operators all have a stake, should all be represented at these hearings.

The National Soybean Processors Association, through its soybean grades and contracts committee, has gone on record as favoring both proposals made by ASA. It is anticipated that representatives of both ASA and the National Soybean Processors Association will appear at the public hearings in support of both the lowered foreign material and moisture contents.

Basic reason for the proposals voiced by ASA is failure of the present grades to reward the careful producer of soybeans for having done a good job. In effect, the present standards penalize him for bringing to market clean and low moisture content soybeans. The man who does a careful job of seedbed preparation, cultivation, weed control and harvesting, bringing to the market soybeans containing one-half percent or less foreign materials, loses two and one-half percent income by doing so. The man who produces such soybeans would be better off to add 50 pounds of sand to each ton of beans before starting for the elevator.

Similarly, the man who waits until his crop is thoroughly dry before harvesting takes a sacrifice in weight by doing so, at no sign of reward. If his beans test 10 percent moisture at the combine, he could just as well add five pounds of water per 100 pounds, still qualifying for No. 2 grade.

The conscientious producer, of course, adds neither water nor sand. He continues to do as good a production job as he can. He brings to market, year after year, a good product. He should be rewarded for doing so. Under the present grading standards he is not rewarded. He is penalized. The man who does a sloppy job is now rewarded. The proposals to lower permissible moisture and foreign material will not entirely solve this problem, but certainly they will help to do so.

Since the changes in Sept. 1949 went into effect a practice which did not previously exist has come into being. An allowable 3 percent foreign material in No. 2 soybeans has been sufficient incentive for handlers to add extraneous matter up to that point. Cars have been reaching processing plants after being very apparently "plugged" or blended to sell junk as soybeans. There has been nothing the processor could do about it, except to lower his price paid for No. 2 beans to a level allowing for such practices. The shipper supplying clean beans has been penalized.

A federal grade on soybeans, on other commodities, must be practical. It must provide for a basis wherein trading can be done at grower, handler, processor and terminal levels without grade gains or losses. It must discourage non-productive practices such as the blending of junk. It must reward the careful operator, penalize the sloppy operator.

The proposals made by ASA should be adopted by the grain branch of PMA. We urge every producer and handler to support them at one of the public hearings.

WE STILL DON'T HAVE A SURPLUS!

Any person who wondered where we would ever find a market for 1950-crop soybeans need but look at the consumption figures carried elsewhere in this issue to find the answer.

At prices far higher than anyone had imagined last May when the crop was planted, processors are crushing more soybeans per month than ever before in history. The October crush figures, which are the latest accurate figures available, show a consumption of approximately 20 million bushels of soybeans by domestic mills. This is approximately 1.5 million bushels more than ever before crushed in one month. November and December crush is expected to be even higher.

Allowing 20 million bushels per month for processing, 27 million bushels for seed and farm disappearance, and 25 million bushels for whole bean exports during the year, even the 287 million figure shown in the Dec. 1 crop report will be insufficient to keep processing plants operating through the year. Already processors are beginning to worry about supplies of beans for August crushing. How high can we go in soybean production and still not have enough? Was Clyde Hendrix' "Forward to a Half Billion" speech at Springfield in August modest?

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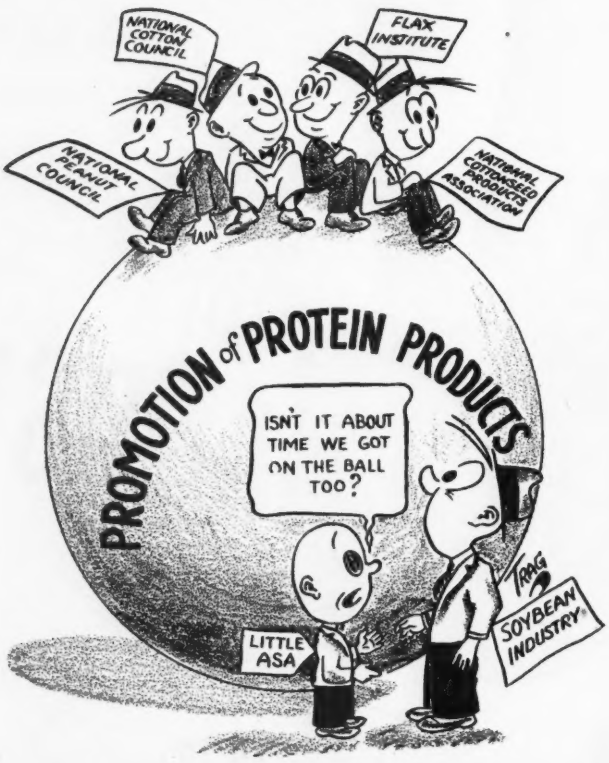


ACTIVITIES OF YOUR ASSOCIATION

Will Hold Hearings on Grading Standards

Informal public hearings will be held in late January and early February to consider proposals by the American Soybean Association and the National Soybean Processors Association to amend the U. S. soybean grading standards, Production and Marketing Administration has announced.

The American Soybean Association has contended that the present soybean grading standards with their high limits for moisture and foreign material have been a handicap to the efficient producer; and that they have encouraged high moisture content and dirty beans. The present grading standards went into effect at the start of the 1949-50 marketing season.

The Association went on record at the 1950 convention in favor of a No. 2 grade allowing 13 percent moisture and 2 percent foreign material, 1 percent below present levels in each case, and the same revision in other grades. A copy of the resolution was sent to PMA, and the pending hearings are the result.

Interested persons may also submit written data, views or arguments to the director, grain branch, Production and Marketing Administration, U. S. Department of Agriculture, Washington 25, D. C., not later than Feb. 15.

Times and places of the public hearings to be conducted by Robert H. Black, PMA grain branch, are as follows:

Jan. 29, 2:30 p.m.—Trading floor, Produce Exchange Bldg., Toledo, Ohio.

Jan. 30, 2 p.m.—Room 660, Chicago Board of Trade Bldg., Chicago, Ill.

Jan. 31, 1:30 p.m.—Assembly room, Chamber of Commerce Bldg., Cedar Rapids, Iowa.

Feb. 2, 2:30 p.m.—Decatur Club Bldg., Prairie and Church Sts., Decatur, Ill.

Feb. 5, 2:30 p.m.—Director's room, Minneapolis Grain Exchange Bldg., Minneapolis, Minn.

No Export Rate Decision

Decision on the proposed export freight rate increase on soybeans shipped from the Missouri-Arkansas-Tennessee area to New Orleans will be announced later. About 50 producers, handlers and other interested people, including representatives of the American Soybean Association, the Farm Bureau and other organizations attended the hearing before Examiner Walsh of Interstate Commerce Commission in Memphis, Tenn., Dec. 12 and 13.

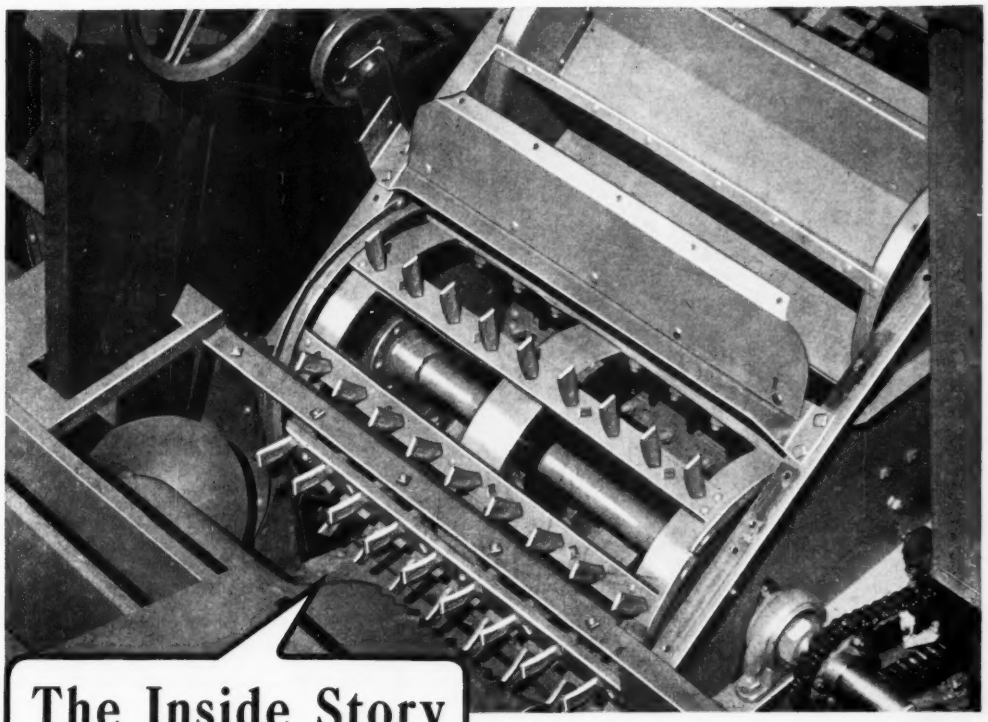
The rate proposed by the Southwest Line railroads is 25c-per-cwt., a 5½c increase.

Those opposing the increase pointed out that the new soybean industry is developing in the Delta area due to the benefit of favorable freight rates. An increase in the rate will mean that the beans will be diverted to barge lines, or else that other producing areas will get the export business, since the higher freight rate will place them in a more favorable competitive position.

At any rate, the producer in the Delta will have to pay any increase in freight rates to maintain his competitive position.

Among those who testified against the rate increase were Geo. M. Strayer, secretary of the American Soybean Association; O. H. Acom, president of O. H. Acom Farms, Inc., Wardell, Mo., and ASA director from Missouri; C. C. Dehne, Sr., manager Arkansas Rice Traffic Bureau, Stuttgart, Ark.; Edward A. Winter, New Orleans Traffic and Transportation Bureau, New Orleans, La.; O. C. Olsen, board of commissioners, Port of New Orleans; H. C. Knappenberger, president Mississippi County Farm Bureau, Blytheville, Ark.; Ronnie F. Greenwell, executive vice president, Missouri Cotton Products Association, Portageville, Mo.; Charles D. Turner, transportation analyst, U. S. Department of Agriculture, Washington, D. C.; C. E.

(Continued on Col. 3, page 8)



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To partially cover cost, you may have the set of four newspaper mats for $1.25; 10 sets for $1 each. Mats are of complete ads, but you may use your own wording if you prefer.

Order Series B mats from: American Soybean Association, Hudson, Iowa.

Export Rate

(Continued from page 6)

McGaughey, president Craighead County Farm Bureau; Jos. Simpson, dealer and buyer, Newport, Ark.; H. R. Adams, secretary Agricultural Council of Arkansas; Kolman Cruse, producer, Osceola, Ark.; R. C. Davis, secretary, R. C. Davis Cotton & Grain Co., Charleston, Mo.; Wilburn F. Davidson, assistant manager, Soybean Storage and Elevator Co., Kennett, Mo.; Nelson Rogers, seed dealer, Riceland Seed Co., Stuttgart, Ark.; Dixon Jordan, vice president, Standard Commission Co., Memphis, Tenn.; J. M. Smotherman, chairman of soybean committee, Mississippi County Farm Bureau, Blytheville, Ark.

Plan Margarine Law Repeal

Participation of the soybean industry in the forthcoming drive for repeal of the Illinois margarine laws was planned at a meeting of soybean producers, processors and representatives of the margarine industry in Decatur, Ill., Dec. 14.

A producer-processor committee was set up to map strategy with Henry I. Cohn, Jr., Valley Farms, Inc., Carrollton, Ill., as chairman. The other producer member was Albert Dimond, Lovington, Ill. Norman E. Hulcher, president of Hulcher Soya Products, Inc., Virden, Ill., was appointed by the National Soybean Processors Association to serve.

Illinois is one of 14 states that still prohibit the sale of yellow margarine. A recent ruling by the Illinois State Department of Agriculture also would prohibit the manufacture of the yellow product. Although Illinois leads all others in volume production of margarine, the state seems destined to lose its margarine plants unless the margarine law is repealed by this session of the legislature.

Raps Restaurants on Butter

The future of soybeans is up to the producer and those in the Midsouth should not abandon the crop in 1951, Paul C. Hughes, field service director of the American Soybean Association, told entrants in the North Mississippi County Soybean Yield Contest at the award banquet in Blytheville, Ark., Dec. 8.

He said soybeans as a major crop in the Midsouth should not be abandoned because:

1—There will be fewer soybeans raised in the North due to expanded corn and wheat acreage.

2—The federal government is sell-

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ing the South a bill of goods in plans for a 16-million-bale cotton crop in 1951.

3—Labor unions may look southward in their efforts. But soybeans require little manpower to raise.

Hughes was critical of what he called the wide use of butter instead of margarine in the "so-called" leading restaurants of Blytheville. With two margarine plants in Mississippi County, the use of butter in restaurants there is "insulting to the farmers of the county."

There is not a cow in the county that produces milk for making butter, he pointed out. (Margarine was served at the banquet.)

County Agent Keith Bilbrey, who introduced Hughes, said the American Soybean Association is doing very fine work and the farmers benefit tremendously from it.

GROWERS

Sell Your Beans in Driblets

It may be a smart move to sell your soybeans a few at a time in several sales this year instead of selling all at once at a certain date or price.

This recommendation comes from T. A. Hieronymus, agricultural economist in the Illinois College of Agriculture. He says this is probably a year when we need orderly marketing of beans to keep prices strongest until next October.

Bean prices have shown an unusual rise since mid-October harvest season. They jumped about 60 cents a bushel in six weeks and have worked up and down since. Soybean prices have now reached a trading level. Farmers are holding their beans in large quantities and firmly this year.

But Hieronymus warns that it looks dangerous this year to hold all your beans for the normal seasonal peak prices next spring. If everyone holds for the highest price and sells in a bunch, those top-heavy supplies could force bean prices down disastrously. Here are three reasons why the usual spring price rise this year is less likely than usual:

First, huge supplies. We harvested the largest soybean crop in history last fall, and total supplies on Oct. 1 were 278 million bushels compared with 225 million a year ago. A sizeable carry-over is entirely possible when this year's harvest begins.

Second, an abnormal price jump already. With a 60-cent rise in only six weeks, prices may already be approaching their peak. The economist thinks the period of highest prices may come earlier than usual for the 1950 crop.

Third, high prices for soybean oil. At 16 cents a pound, oil seems high enough in comparison with world market prices. To avoid further pile-up of oil supplies, we must export about 1,400,000,000 pounds of edible fats, including soybean oil, during 1949-50.

On the other hand, one factor supporting bean prices is the low price for soybean meal at present. You can buy meal in Decatur for the same price per pound as corn in Chicago. In all likelihood, meal prices will go up. If so, soybean prices will increase also.

All in all, Hieronymus recommends selling your beans in several sales. He thinks it will pay to let a few go whenever buying pressure develops on the market.

Combines Field of Minnesota Beans

Peter Homme combines a field of Monroe soybeans on his farm near Sacred Heart in Renville County, Minn. The farm is located in the valley of the Minnesota River. Homme is a member of the American Soybean Association.

—Photo by Blytheville Courier-News

Cecil Mann of Promised Land, Ark., (second from left) receives the Ed Critz trophy and $100 from Johnson Blackwell (second from right), chairman of the North Mississippi County Soybean Yield Contest, sponsored by the Blytheville, Ark., Jaycees. Looking on are J. P. Harmon, Clear Lake, Ark., second place winner at left; and Carl Webster, Armorel, Ark., who placed third.

Stiegelmeier Winner Again

A longtime competitor returned to the International Live Stock Exposition's hay and grain show this November and won the show's coveted "soybean king" title for the third time in his career.

He is Harvey L. Stiegelmeier, of Normal, McClean County, Ill. He won on a peck of certified Adams soybeans that had yielded 42 bushels per acre. A week earlier he had won top U. S. honors at the Royal Canadian Winter Fair at Toronto.

Runnerup at the Chicago show was William R. Beattie, Staples, Ontario. Beattie was champion of the show in 1948. Stiegelmeier won top honors in 1946 and 1947.

In 1950 he grew 192 bushels of corn and 20 bushels of Hawkeye soybeans per acre in a field planted to alternate strips of corn and beans. The field made one of the high corn yields in Farm Journal's "Golden Acre" contest. Stiegelmeier said his soybeans yielded 10 bushels per acre less than they should. But he figures that the alternate planting boosted the corn yield 20 bushels.

Mann First at Blytheville

Cecil Mann, Promised Land, Ark., became the fourth holder of the Ed Critz trophy presented to him as first place winner of the annual North Mississippi County Soybean Yield Contest sponsored by the Blytheville, Ark., Junior Chamber of Commerce.

Mann was presented with the award at the annual award banquet in the Jaycee clubhouse Dec. 8. Mann produced an average of 50.8 bushels of soybeans on five acres.

Second place winner was J. P. Harmon, Clear Lake, Ark., with an average of 48.2 bushels; and third was Carl Webster, Armorel, Ark., with 47.4 bushels. Receiving honorable mention were Chris F. Tompkins, Burdette Plantations, Burdette, Ark., with 45.7 bushels average; and C. L. Long, Clear Lake, Ark., with 42 bushels.

Awards were presented the winners by Johnson Blackwell, chairman of the contest, the fourth sponsored by the Jaycees in cooperation with the office of Keith Bilbrey, Mississippi County agent.

A total of 270 growers entered five-acre plots in the contest.

Other members of the Jaycee committee that conducted the 1950 contest include Virgil Brittain, Ben Henderson, Foy Etchieson, Charles Roy Lutes, H. C. Weathers and Baylor Abernathy. William H. Wyatt served as advisor.

Better Save Your Feed Sacks

With feed sacks worth around 25 cents each, and with tight burlap and cotton supplies, it will pay you well to handle feed sacks carefully.

John Munson, who handles feed supplies for the Illinois College of Agriculture beef cattle herd, says the college has just bought 500 reclaimed sacks for 20 cents each.

To make sacks last longest, hang them on a wire pipe hung by wires from a ceiling rafter. That will keep them away from rats and mice and out of your way. Small savings like this mount up.

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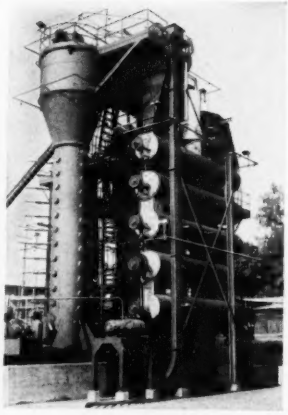

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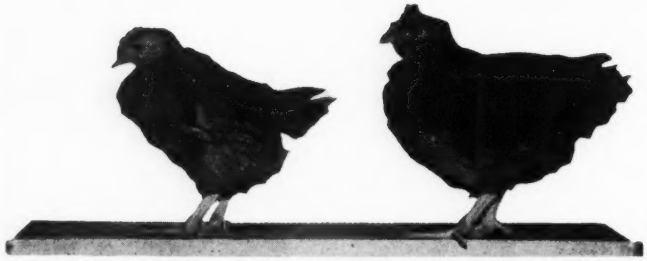


Chick on left was fed a vegetable ration and weighed only 1.13 lbs. at seven weeks. Chick on right received the same type of ration except a vitamin B-12 concentrate was added and weighed 1.68 lbs. at the same age.

—Photo Iowa Agricultural Experiment Station.

B-12 and Antibiotics

THEIR VALUE TO THE SOYBEAN INDUSTRY

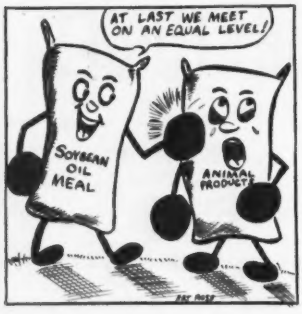
By ELTON L. JOHNSON
Poultry Department, Iowa State College, Ames

SOYBEAN OIL MEAL is an important ingredient in today's poultry feeds. This is due to its increased recognition as a source of quality protein.

Soybean oil meal is no longer at a disadvantage in competing with meat scrap, tankage, dried milk, fish meal and other animal products as a protein concentrate for poultry feeds. This difference in favor of soybean meal has occurred chiefly as a result of commercial production of vitamin B_{12} and antibiotics such as penicillin, streptomycin and aureomycin. A combination of these concentrates and soybean meal will promote growth of chicks equal or superior to the rate obtained with animal proteins.

Vitamin B_{12}

Vitamin B_{12} appears to be the chief nutritional factor which is contributed by animal protein concentrates to diets containing feed ingredients coming only from vegetable sources. The isolation of this vitamin has made it possible to study more completely the adequacy of soybean oil meal as a source of protein. Rations containing soybean meal, corn, alfalfa, minerals and vitamins have been improved considerably by the addition of vitamin B_{12}. On the other hand, it is also known that a combination of ingredients from animal sources will often promote a faster growth rate of chicks than will the corn-soybean-meal type diet mentioned when it is supplemented with crystalline vitamin B_{12}. One example is that the inclusion of dried milk products at a level of 3 or 4 percent will give growth above that obtained with vitamin B_{12} alone.



Antibiotics

The recent feeding of antibiotics such as aureomycin, penicillin, and streptomycin to poultry has demonstrated their growth promoting properties in addition to vitamin B_{12}. Let's look back a short period of time to see how this development occurred.

In the development of concentrates which contained appreciable amounts of vitamin B_{12} many procedures have been used. Some of the manufacturing processes involve the production of antibiotics as the major item of consideration. The residue from such fermentation reactions was used as a source of animal protein factor (APF) or vitamin B_{12} activity. Research with such products indicated a growth response which could not be explained on the basis of vitamin B_{12} contained in the concentrates. This led to the question of whether the antibiotics which might be present in the residue were responsible for some of the increased growth. Recent investigations with the crystalline antibiotics have confirmed this idea.

Some Unanswered

The answers to many questions pertaining to the growth response obtained with either antibiotics or milk products are not available at this time. It is generally believed, however, that the antibiotics act in controlling intestinal conditions in the chick. The action of dried milk or whey may be similar or may be due to the presence in the milk product of additional nutritional factors which are required by the chick.

The term "animal protein factor" has previously been used to refer to vitamin B_{12} and other factors simply because the factors are known to be present in animal proteins. The use of this term will gradually be discontinued because of the identification of vitamin B_{12} and the production of antibiotics for feeding purposes. Additional nutritional factors which may have been considered a part of the animal protein factor complex will be considered as unknown growth factors.

These vitamin and antibiotic con-

centrates have resulted in soybean meal being used to supply a greater portion of the protein required by poultry. The reason is, of course, that such concentrates are able to take the place of animal proteins in supplying vitamin B_{12} and other unknown factors.

This development has permitted us to more closely evaluate the protein quality of soybean meal on a comparative basis with the animal proteins. The supplementary effect of a commercial concentrate in a soybean meal ration is demonstrated by experimental results obtained at the Iowa State College. New Hampshire chicks reared in battery brooders were fed the diets given in Table 1 until they were 8 weeks of age.

Table 1. Vitamin B_{12} and antibiotics increase chick growth

Addition to ration	Av. wt. at 8 wk.
None (basal*)	1.20 lbs.
Vitamin B_{12}	1.65
Vitamin B_{12} plus 4% whey	1.88
Vitamin B_{12} plus aureomycin	1.95
Vitamin B_{12} plus streptomycin	2.03

* All rations contained corn, soybean meal, alfalfa meal, minerals and vitamins. Vitamin B_{12}, aureomycin, and streptomycin were fed at levels of 12 gamma, six and 63 milligrams per pound of feed, respectively.

The results of this experimental work show that vitamin B_{12} increases the growth of chicks and a combination of vitamin B_{12} with dried whey or the antibiotic streptomycin gives a further increase. The fact that chicks average 2 pounds at 8 weeks of age when fed a diet containing soybean oil meal as the only protein concentrate is a good example of the high quality of protein which can be provided by soybean meal.

Rely on Soybean Meal

The development of concentrates with guaranteed levels of vitamin B_{12} and antibiotics permits the feed manufacturer to rely more completely on soybean oil meal as the major source of protein for poultry feeds. The major consideration in depending entirely on soybean meal is to be certain the soybean meal is of high quality.

Feed manufacturers and poultrymen in the Midwest are fortunate in being in an area where soybeans are produced in tremendous quantities. The amount produced and the high quality of soybean protein creates a very favorable situation in supplying protein at a reasonable cost for manufacturing poultry feed. Vitamin B_{12} and antibiotics will boost the soybean industry because it permits more soybean oil meal to be used in feeds for poultry and other farm animals. This means a larger outlet for soybean meal which in turn creates a larger demand for soybeans and helps to balance our agricultural program.

Conducting a Taste Panel To Evaluate Edible Oils,[1]

By HELEN A. MOSER,
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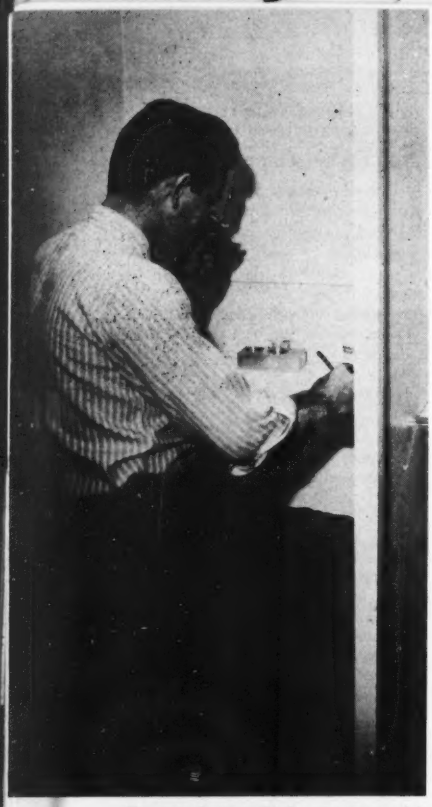

The organoleptic evaluation of soybean oil is carried out in individual booths in an air-conditioned room. Here, a taste panel member is going through the routine of testing soybean oil.

SOYBEAN OIL introduced one of the most perplexing, but one of the most interesting and challenging, problems to the research staff at this Laboratory. While most products can be evaluated by routine physical and chemical tests, soybean oil cannot.

The one shortcoming of soybean oil is its lack of flavor stability. While it is generally agreed among investigators that this is probably an oxidative problem the existing physical and chemical tests are not suitable for measuring the off-flavor development in soybean oil.

It is true that in general the flavor rating declines as the peroxides develop. However, there are those oils which show low peroxide values and yet have very undesirable off-flavors. Thus organoleptic evaluation, along with the known physical and chemical tests, seems to be the most logical approach to evaluating the progress made on this problem.

The first taste panel at this Laboratory was organized in 1944. It was patterned after the procedure outlined by the Bureau of Human Nutrition and Home Economics (1). Briefly, a group of people were given preliminary acuity tests. After eliminating those who had very high thresholds or made incorrect identifications, the remainder were given a second series of tests as a check on their performance. The panel was selected from the latter group and trained to evaluate oil samples.

Since that time new tasters have been trained with oil samples because it was felt that little relationship existed between the primary tastes as such and the flavors in oils. After a training period in which the trainees became familiar with tasting procedures, flavors of oils, and the grading system, they were given a series of tests designed to evaluate individual as well as panel performance. With trained and evaluated tasters available, it is possible to maintain a more uniform sized panel which assures us of more reliable results.

There are two types of taste panels, the consumer and the analytical. The former is used to measure consumer acceptance of a marketable product; the latter is used to detect small differences in various samples and is used as a tool in research procedures. Since our panel is the analytical type, the selection, training, sensitivity, and consistency of the individuals comprising the panel is of extreme importance.

The development of our methods has been described previously. Problems such as number of samples, temperature of the oils, taste fatigue, and the score sheet were gradually worked out and are in use today.

Some Problems

Some of the research problems to which the organoleptic method has been applied are:

1—The correlation of flavor scores and peroxide values for both soybean and cottonseed oils.

2—Flavor "reversion."

3—Identification of aged soybean and cottonseed oils.

4—Evaluation of simulated oils.

5—Evaluation of the effect of metals on flavor stability of soybean oil.

6—Evaluation of flavor and oxidative stability of added deactivators, scavengers, antioxidants, etc.

7—Evaluation of each step in unit plant processing operations.

8—Evaluation of fractionated oils.

9—Evaluation of pilot-plant operations.

In planning the work, the design of the experiment is important. The objectives must be outlined and then the best methods of obtaining reliable answers decided on. An example will illustrate this point. Following the investigation of the German vegetable oil industry by Warren H. Goss in 1945, this Laboratory examined the use of citric acid in retarding the development of "reversion" flavors in soybean oil. In one experiment the objectives were to determine first, if the addition of citric acid had any effect on the flavor stability of soybean oil at room temperature storage, and second, if the peroxide value was affected by the addition of citric acid.

To answer these problems, a control sample and one to which citric acid had been added were stored for varying lengths of time and then evaluated organoleptically. Each time the samples were tasted the peroxide values were determined and compared with the flavor score.

Table I shows the results of the experiment. Our first objective, the effect of citric acid on the flavor stability of soybean oil, is answered by noting that at 6, 12, 18, and 24 weeks the differences in the control sample and the sample to which cit-

[1] Presented at Northern Regional Research Laboratory Soybean Conference, Jan. 16-17. The text of this paper, with slight revisions, is as it appeared in Food Technology, Mar. 1950. It is published herein with the publisher's permission.

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ric acid had been added are highly significant in favor of the latter sample.

The second question, the effect on peroxide development, is answered in somewhat the same way. The peroxide value increases immediately in the control sample while it remains low in the citric acid treated sample until the 24th week. Thus, with carefully planned and prepared samples and a designed schedule our questions were answered.

Many of our problems are much more complex and more samples are required. Our laboratory deodorizer is designed for deodorizing four samples simultaneously and many of our experiments consist of a control sample and three variables. These four samples as they come from the deodorizer are presented at one time to the taste panel. All samples are or should be nearly bland as they come from the deodorizer and therefore present little taste fatigue. In order to see what the flavor development would be if they stood on a grocer's shelf as salad oils, the oils are stored under comparable conditions and then presented in pairs to the taste panel. This paired sample technique seems desirable because it eliminates taste fatigue that is experienced when samples have pronounced flavors. In other words, Sample A is tasted with Samples B, C, and D. Sample B with Samples C and D, and finally Sample C with Sample D.

The physical conditions under which we operate the taste panel have recently been improved. Our taste panel room is kept at constant temperature of 78°F. and a relative humidity of 40 percent. The air conditioning system is separate from that of the building and the rate of air exchange is such that the room is odor free at all times. The taste panel member enters from the corridor, turns on the pilot light to signal the attendant in the preparation area. The samples are passed through the sliding doors to the panel member who tastes the samples and records his evaluations on the standard score sheet.

Tasting Routine

The illustration shows a panel member going through the routine tasting of soybean oil. The samples are tested for odor first in order of left to right. The score is checked on a score sheet and then the samples are tasted, the sample having the least odor being tasted first. The score is assigned and the intensity of the various flavors checked on the lower half of the score sheet.

After tasting he leaves through the office area where he notes what samples he has tasted and compares his evaluations with those of other panel members. Here he also receives his "reward" cookies, which help remove any lingering flavors of oils from the mouth. The opportunity to discuss the samples lends much to maintaining interest in the work. Meetings of the entire taste panel are held often to talk over the results of completed work. Such activities tend to create interest, a matter we feel is extremely important in holding a panel together. Dr. Bengtsson of the Stockholm Breweries said in a recent paper that "interest is the prime attribute of a good taster" (2).

The preparation area of the taste panel room at the Northern Regional Research Laboratory. The author is passing samples of oil in a heated aluminum block to the taste panel member on the opposite side of the partition.

No doubt the question in your minds now is: What is done with the taste panel data and how reliable is it? First of all, the mean for each sample is determined. It is then statistically compared for significance with the other samples by what is called the t-test method, which shows whether the difference in the means is real and due to the treatment given the oil or is due to chance. The flavor responses are also tabulated and often some pronounced flavor can be traced to a certain treatment given the oil.

Table II shows a typical run. The samples as they came from the deodorizer were about the same in quality and were rated "good." Ten is the highest possible score and is reserved for bland oils. After these oils were stored at 60°C. for four days they were again evaluated by the paired-sample technique. Off-flavors had developed as can be seen from the scores assigned the oils.

Table I—Effect of Citric Acid Addition to Soybean Oil

Weeks of storage	Control Sample		Citric Acid Added		Significance
	Score	Peroxide value	Score	Peroxide value	
0	8.4	0.4	7.9	0.3	†
6	4.9	8.9	7.9	1.1	*
12	3.6	31.5	7.5	1.8	**
18	2.6	38.3	5.8	4.1	**
24	2.8	40.2	5.2	31.2	**

† No significant difference.
* Significant difference.
** Highly significant difference.

Table II—Taste Panel Evaluation[1]

1	2	3	4	
Raffinate plus .02% phosphatides	Raffinate control	Original oil plus .02% phosphatides	Original oil control	Sig. dif.[1]
		0 Time		
8.7	8.4	8.7	8.6	†
		After 4 days' storage at 60° C.		
6.9	5.8			*
6.6		6.9		†
6.6			6.6	†
	5.9	7.4		**
	6.2		6.5	†
		7.5	6.8	†

[1] For explanation of symbols, see Table 1.

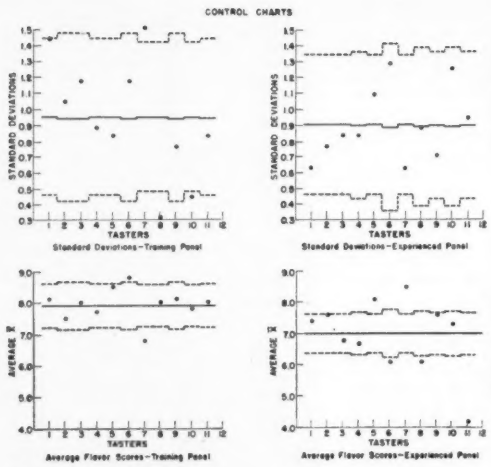

Fig. 1—Control charts showing average flavor scores and standard deviations for tasters from both training and experienced panels.

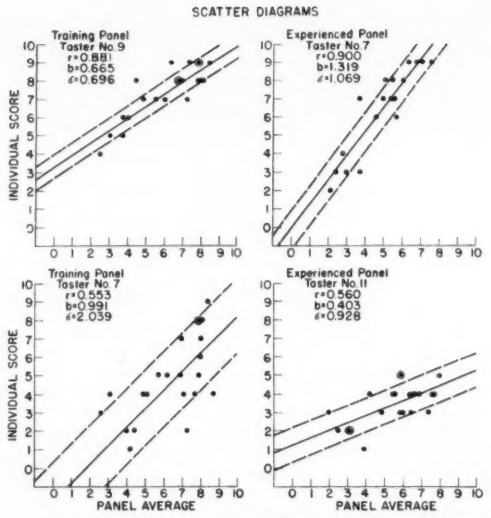

Fig. 2—Scatter diagrams showing the highest and lowest correlation coefficients of tasters from both training and experienced panels.

The consistency of the panel is shown by the panel averages each time the oil was presented paired with one of the remaining samples.

Because results are only as reliable as their source, we periodically evaluate statistically both training and experienced panels for individual as well as panel performance. The control chart method that measures the reproducibility of the individual's scoring on a single oil is shown in Fig. 1. The same oil was presented 20 times and the results supply the data from which the control charts are drawn. The discontinuous lines for the limits in these figures result from the allowance made for the unequal number of tastings by panel members. From the chart on averages for the training panel we see only two members were outside the limits, while on the chart for experienced members we see that five were outside the limits. This indicates that some of the experienced taste panel members were grading the oil samples high and some were grading them equally low. The control chart on standard deviations shows that each member is consistent in his grading of the samples whether he grades high or low, but that the panel as a whole is not consistent in its thinking as to the quality of the oil samples. It is interesting to note that taster No. 7 on the control chart of standard deviations for the training panel is outside the limits, showing erratic scoring. The same taster is outside the limits on the control chart of averages. The fact that only one member is outside the limits on the control chart of standard deviations for the training panel may indicate that they benefited by their discussions concerning the evaluation of samples during the training period and were reacting therefore more along the same lines. Tasters No. 8 and 10 on this same chart have very small standard deviations and may be said to be very reliable tasters.

Second Method

The second method used for measuring individual and panel performance was the correlation and regression method which measures the ability of an individual to distinguish between different oils. Twenty-two paired samples of oil were presented at various times throughout the test period. The samples were made up of control samples and pairs of oils which had been stored at 60° C. for one, three, seven, and 15 days. The individual's score was correlated with the average score of the remainder of the panel. The correlation coefficients for the training panel ranged from 0.55 to 0.88 while those of the experienced panel ranged from 0.56 to 0.90. The regression coefficient showing how many units the individual score changes for each unit change in the panel average, ranged from 0.61 to 1.84 for the training panel and 0.40 to 1.33 for the experienced panel. Scatter diagrams are shown in Fig. 2 for the tasters having the highest and lowest correlation coefficients for both the training panel and the experienced panel. Such diagrams show at a glance the relationship between the two variables, individual score and panel average; the amount of change in individual score for each unit change in panel average; how nearly the estimated values agree with the values actually observed for the variable being estimated; and the accuracy with which predictions can be made under the same conditions.

To determine an individual's ability to differentiate between two samples, the "triangular test" was used. In this test three samples were presented the taster. Two of the samples were identical, the third was different. Each time this test was presented the panel members were asked to select the two samples that were identical. The degree of difference in the identical samples and the third is of great importance. If the difference is too great, it would be detected by even the poorest tasters. If the difference is too slight, chance selection alone could give correct answers once out of every three trials. When the number of tests is small, one cannot assume that chance will produce exactly 33 percent of correct answers. It is necessary in such cases to know how far the number of correct an-

"Rewarded" With Cookies

swers must exceed 33 percent before there is any certainty that guessing is eliminated. This can be calculated according to Bengtsson's adaption of the chi-square analysis to the triangular test (3,4).

Some interesting observations may be made from the results of this series of tests. Taster No. 7 on the training panel had the lowest correlation coefficient, was unable to distinguish the difference in samples of the triangular test, was outside the limits on the control chart of averages and was erratic in the scoring of identical samples. Such results furnish sufficient evidence for dropping Taster No. 7 from the taste panel group.

Another interesting case is that of Taster No. 7 on the experienced panel. Although he had the highest correlation coefficient, 0.90, he had one of the lowest percentages of correct answers in the triangular test. This is difficult to explain since this particular individual has a very keen sense of smell. It was evident throughout the tests, however, that there was a psychological reaction to this test each time it was given and the factor of confusion may have caused such a response. Another explanation is that this same taster was unable to detect diacetyl in low concentrations and perhaps he could not detect the buttery flavor in this oil. The control charts showed that while this same individual graded slightly higher than the panel, as a whole he was consistent in his grading.

Four-Month Period

Recently the results of a four-month period were evaluated by the correlation-regression method. With the exception of two persons, the panel showed good agreement. In the case of those two persons, known causes accounted for their slightly below average performance. The panel was also checked by the control chart method over a 14-month period. Only two members were outside the limits on the chart on averages. It just happened that one value was high and the other low, thus giving balance to the panel. The chart on standard deviations showed only one person was erratic in scoring. These three persons, the high and low scorers and the one who lacked reproducibility, will be watched and if further tests show they are unable to stay within the panel limits it can be recommended that they be removed from the panel or given further training.

Following the description of the work of the taste panel, the job classifications of its members may be of interest to you. The panel consists of a bookkeeper, a technical editor, a technical analyst, a technical assistant, an industrial analyst, eight chemists, three chemical engineers, and two agronomists.

Type of work apparently has no influence on the taster's ability to judge oils, for the statistical analysis shows that a chemical engineer and the industrial analyst had the highest correlation coefficients. That smoking has not affected the results of the taste panel is indicated by the fact that one of these two tasters is a chain smoker and the other is a non-smoker.

In conclusion, organoleptic evaluation is fast becoming an accepted analytical tool for the research worker in the field of foods and food products. A taste panel as described can greatly aid the progress of research on such problems as our own —the flavor stability of soybean oil.

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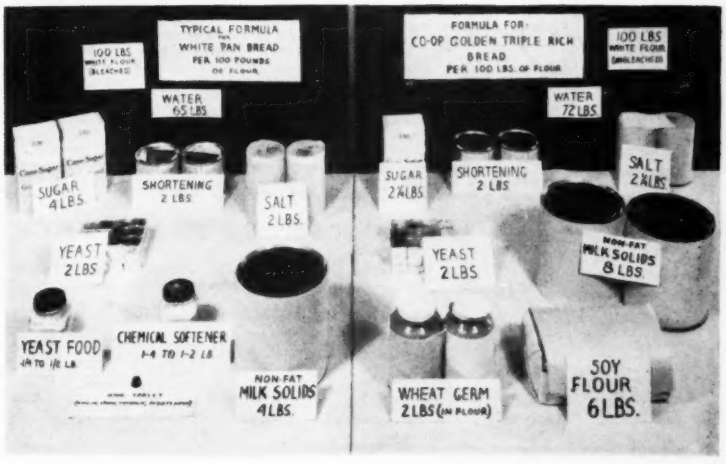
Soy Loaf Compared with Standard White

This comparison between the elements in an average batch of commercial white bread and of the Co-op Triple Rich bread which employs 6 percent soy flour was presented before a House committee investigating the use of chemicals in food products. Due to consumer demand for this bread, which was developed by Clive McCay, professor of nutrition, Cornell University, Ithaca, N. Y., the Federal Security Agency is considering setting up a separate standard for it. Present identity standards now being considered for white bread permit the use of only 3 percent soy flour.



BIG INCREASE IN COUNTRY GRAIN STORAGE

Receipts of soybeans at primary grain markets in September-November of 1950 totaled 23.3 million bushels, 12 percent less than a year earlier, according to the November Fats and Oils Situation of the U. S. Department of Agriculture.

This decline in receipts of soybeans as compared with a year earlier was in spite of the major increase in the crop in 1950. Total inspected receipts in September and October 1950 were 69.1 million bushels, 21 percent smaller than a year earlier. These figures bear out reports that farmers are holding more soybeans in storage this year than usual.

Country grain storage facilities have increased substantially in the last two years. Under a U. S. Department of Agriculture program, storage capacity for all grains, including soybeans, in Illinois, Indiana, Ohio, Iowa, Missouri and Minnesota, the six largest soybean producing states, increased 411 million bushels, almost all of it added since June 1949.

Of this total increase in capacity, 12 million bushels, half in Iowa, was in farm storage facilities. Another 17 million bushels capacity was available through guarantee agreements with Commodity Credit Corporation. The remaining capacity of 382 million bushels is mainly in steel bins owned by CCC and used primarily for storing grain owned by CCC.

With smaller early marketings of soybeans this year than usual, there will be a tendency for the seasonal upswing in soybean prices to be smaller than usual, according to Fats and Oils Situation. Soybean marketings after Nov. 30 will be substantially larger than in any previous marketing year. Soybean prices in the next few months, however, will also be strongly affected by international developments.

The national average price to farmers for soybeans has risen 8 cents or more per bushel from October-December to April-August in 21 of the last 26 marketing years, the USDA publication states. In these 21 years, the average price rise from October-December to April-August was 30 cents per bushel.

The cost of storage in the postwar years is approximately 8 cents per bushel. The only years when prices failed to average at least 8 cents per bushel higher in April-August than October-December were 1930, 1931, 1937, 1939, and 1948. In each of these five years except 1939 there were marked declines in the general price level.

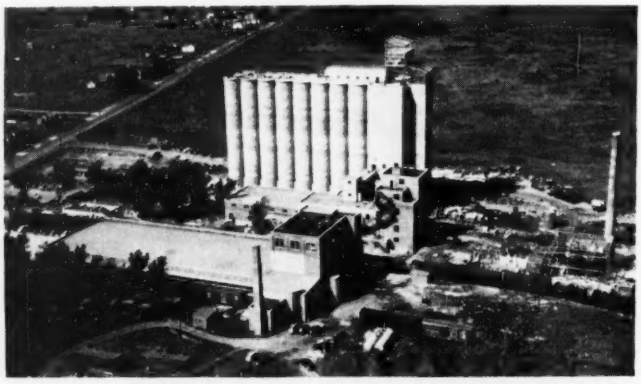
FROZEN FOOD IN TEXAS

The Texas Court of Criminal Appeals soon may have to pass on whether it is legal to make a frozen food product similar to ice cream, using vegetable oil, instead of butter-fat. The dairy interests have been fighting the manufacture of the new product, which is wholesome and delicious, since it was introduced several months ago.

Recently five Waco, Texas men were convicted in city court on a charge of violating the state's health laws. The attorney for the men said the cases would be appealed to the county court and carried to the highest state court to test the validity of the present state law regulating the content of ice cream.

A spokesman for the firm manufacturing the frozen food product said the cases at Waco were "part of the fight of the dairy interests against any other fats."

A-D-M's 3-Million-Bushel Plant



Annual processing capacity of this new solvent extraction plant of Archer-Daniels-Midland Co. at Mankato, Minn., is 3 million bushels, the largest in Minnesota. Located next to the firm's Mankato Mills (a formula feed unit), the plant consists of five separate buildings, a storage elevator, a cleaning and drying facility, a processing building, a five-story solvent extraction unit and a warehouse. Storage capacity is 1 million bushels. Plant was formally dedicated last fall.

WHAT?...NO NOD-O-GEN?

What kind of a dealer are you to fail me at a time like this? My husband is getting ready to plant legumes and insisted that I get some of the HIGH QUALITY NOD-O-GEN cultures for him.

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"GAT" sprayers for home lawn use.

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NOD-O-GEN

The Pre-Tested Inoculator
The Crop and Profit "Pepper Upper"

What's In A NAME?

By W. J. MORSE

Retired Principal Agronomist, Division of Forage Crops and Diseases, Bureau of Plant Industry, Soils, and Agricultural Engineering Agricultural Research Administration, U. S. Department of Agriculture.

Above, bean curd cakes being sold by vendors on streets in Peking, China. In the Orient special varieties of soybeans are used in the manufacture of bean curd and many other soy products. Below, Korean farmers' market day held weekly in the small villages. This offers a rich source of soybean varieties.

Below, Japanese farm girls planting seed of the Azemame (Paddy Field Boundary Soybean) variety on the land bounding a rice paddy. The beans are used in making miso (salty soy paste), soy sauce, and other foods for home consumption.

ANCIENT Chinese literature recording the advice of agriculturists on the best varieties of soybeans to plant under different soil and climatic conditions and the utilization of certain varieties for specific purposes, indicates that the soybean was perhaps one of the oldest crops grown by man. Varieties of soybeans are very numerous in oriental countries, especially Korea. There during agricultural explorations by the United States Department of Agriculture in 1929 to 1931 more varieties showing a wider range of color, size, and shape of seed and plant characters were found than in China, Manchuria, and Japan.

The soybean is peculiarly sensitive to changes of soil and climatic conditions and this explains undoubtedly to a very great extent why practically every locality in the soybean regions of eastern Asia has its own varieties. Explorations in small villages in China and Korea revealed that nearly every family had its own favorite varieties for different uses. It is noteworthy that of the large number of varieties introduced into the United States from the Orient the same variety has rarely been secured a second time unless from the same locality. Obviously, centuries of experience aided by natural crossing and selection have brought about the development of the vast number of varieties for special purposes under local conditions in China, Korea, and Japan.

Prior to the introduction of numerous varieties of soybeans by the Department in 1898, not more than eight varieties had been grown in the United States. The culture of these was limited to a few well-defined areas. During the past 50 years the Department has made several thousand introductions of soybeans from China, Korea, Manchuria, Indonesia (Java), and India, representing many hundreds of distinct types. This large collection, ranging in maturity from 75 to 200 or more days, has shown wide differences in color, size, shape, composition and quality of seed, plant characters, utilization, and in adaptation to the various soil and climatic conditions in the United States.

In a recent review of all introductions received from eastern Asia, it was noted that a large number of those from China, Korea, and Japan were sent in under their native varietal names, the translation of which revealed some very interesting and perplexing names. It was interesting to note among the oriental names three—Chief, Chestnut, and Hawkeye—that breeders in the United States have assigned to varieties developed for their own local conditions.

The many peculiar oriental varietal names of soybeans suggested the title of this article. It was thought that American soybean breeders and growers would be interested in knowing the sort of varietal names soybeans have in other parts of the world.

It is obvious that the oriental breeder or grower, in naming some of the varieties, must have been in a poetic frame of mind in assigning such names as "Heaven's Bird," "White Spirit of the Wind," "Flower Garden," and "Clasped Hands."

The large number of varietal names is quite understandable as they indicate various seed and plant characters, temples, villages, prefectures, animals, birds, uses, and occasionally a breeder's name. This will be noted in the following lists and selected classification of varieties. It is not to be assumed that these lists of names represent all of the varieties grown in these countries. In fact, they are only a selected number from the varieties introduced into the United States during the past 50 years. It was interesting to note that some of the Chinese varietal names were the same as those in Chinese literature dating back 100 years ago.

CHINESE VARIETIES OF SOYBEANS (Translation)

Autumn
Autumn Azure
August Green
Azure
Baby Rabbit's Eye
Black Belly
Black Curd
Black and Yellow
Black and White
Burst Pods in Six Months
Chicken's Foot Yellow
Cow's Hair Yellow
Crab's Eye
Crow's Eye Yellow
Crow Skin Green
Crystal
Dark Pod
Duckweed
Eighth Month White
Entwined Silk
Excellent Grade
Fan
Field Green
Fifth Month Yellow
Five Month Broad Pod
Flat Black
Flesh Yellow
Flowery Eyebrow
Follow Rice
Four Grain Green
Four Grain Yellow
Golden
Golden Ear Ring
Golden Earth
Golden Round
Golden Yellow
Goose Egg
Great White
Green
Green Skin
Green Tea
Hairy Green
Hemp Skin Yellow
High Foot Yellow
Horse's Saddle
Iron Pod Green
Jade
Large Black
Large Green
Large Red
Large Round Black
Large Violet
Large White Eyebrow
Leopard's Loin Azure
Long Large Green Leaf
Lotus Heart
Magpie
Melon Ripe
Midsummer Yellow
Millet Straw
Moon Tooth
Mud
Musk Deer's Skin Yellow
Parrot Green
Pearl Shape
Peiping Cat's Eye
Peiping Jam Colored
Perfume
Persimmon Seed
Pine Seed
Purple Flower
Rabbit's Eye
Rat's Eye
Raven's Eye Yellow
Red Mottled
Red Hair Green
Round Cattle Feed
Round Pearl
Round Yellow Pearl
Seventh Month
Sheep's Eye
Sixth Month Black
Sixth Month White Hairy
Small Black
Small Golden
Small Golden Yellow
Small Green
Small Round Black
Small Round Green
Small Yellow
Smoky Yellow
Soochow Yellow
Sparrow's Cackling
Sparrow's Egg
Swallow's Egg
Steel Skin Yellow
Tea
Tea Flower
Three Bean Pod
Tiger Skin
Translucent Green
Unknown Water
Vegetable
Water White
White Crested
White Round Fragrant
White Eyebrow
White Podded Green
Wild Boar's Eye
Winter Yellow
Yellow Hair Green
Yellow Pearl

SELECTED CLASSIFICATION OF CHINESE VARIETIES

Seed Color: Black Belly, Chicken's Foot Yellow, Crow's Eye Yellow, Crow's Skin Green, Flesh Yellow, Musk Deer's Skin Yellow, Parrot Green, Raven's Eye Yellow, Tiger Skin.

Seed Size: Great White, Large Black, Large Green, Large White Eyebrow, Small Golden.

Seed Shape: Flat Black Golden Round, Large Round Black, Pearl Shape, Round Pearl, Small Round Green.

Hilum (Seed scar): Flowery Eyebrow, Large White Eyebrow.

Maturity: August Green, Autumn Azure, Burst Pods in Six Months, Eighth Month White, Fifth Month Yellow, Melon Ripe, Midsummer Yellow.

Pods: Five Month Broad Pod, Four Grain Green, Four Grain Yellow, Iron Pod Green, Three Bean Pod, White Podded Green.

Leaf: Long Large Green Leaf.

Pubescence: Hairy Green, Red Hair Green, Sixth Month White Hairy, Yellow Hair Green.

Utilization: Black Curd, Follow Rice, Round Cattle Feed, Vegetable.

Odd Names: Entwined Silk, Moon Tooth, Sparrow's Cackling, Unknown Water.

KOREAN VARIETIES OF SOYBEANS (Translation)

Aid for New Land
Aspen
Bamboo Leaf
Barbarian
Barbarian Blue
Bell
Beheaded
Big Green
Bird's Egg
Black Chestnut
Black Cocoon
Black Eye
Black Green Mouth
Black Mouse Eye
Black Pod
Black Rat's Eye
Black Skin
Black Sprout
Black Striped
Black Vegetable
Blue
Bluish
British India Jade
Broad River
Burnt
Camphor
Carry Away Spirit of Wind
Castor Bean Skin
Chestnut
Chief
Chotan
Chotan White Eye
Chrysanthemum
Clasped Hands
Clear Blue
Clear Green
Climbing
Cock's Crowing
Cock's Crown
Confucian Scholar
Common
Cow's Knee
Crow's Early
Crow's Egg
Dark Skin
Deer
Domestic Geese
Dragon Eye
Early
Early Blackeye
Early Middle-sized
Early White Flower
Edible
Field
Fire
First Cock's Crowing
Five Gold
Flower Garden
Flying Fish
Fog
Food
Gold
Golden
Grape Eye
Great Black
Great Happiness
Great Work
Green Eye
Green Mouth
Green Pine
Gunner's
Half Rice
Hard Jade
Hawk Eye
Honest
Honey
Horse
Humor
Indigo
Jujube
King
Lacquer Black
Large Black
Large Black Green
Large Date
Large Gluten Rice
Large Grain White
Large White Flour
Light Black
Long Glossy
Long Life
Millet
Millet Friend
Mottled
Mountain
Mouse
Mouse Eye
Ocean
Oil
Outside Island
Paste
Peaceful
Perfect Yellow
Perfect White
Pheasant Leg
Pigeon
Plant Between Crops
Plant In Millet
Plant In Wheat
Plentiful
Prolific
Pure Gold
Purple
Purple Mouth
Rain
Rainy Season
Rat's Eye
Red
Red Rat
Red Rice
Red Striped
Red Yellow
Rengyo's Egg
Rensen Brown Eye
Rich
Rich and Virtuous
Rich Black
Roasting
Root
Saddle
Single Bamboo
Six Months
Skylark
Small Black Eye
Small Blue
Small Blue Eye
South Sea
Spirit Of The Wind
Spotted
Sprout
Swallow
Swallow's Egg
Tansen
Tea
Thousand Tie
Thousand Wrapping
Turtle Nest
Waiting
Water Rail
White Boar Hip
White Chestnut
White Eye
White Flower Pure Yellow
White Horse
White King
White Mouth
White Priest's Foot
White Rat's Eye
White Spirit of the Wind
White Stalk
White Vegetable
Widower
Yellow Dragon's Eye
Yellow Powder
Yellow Rolled

(Turn to next page)

SELECTED CLASSIFICATION OF KOREAN VARIETIES

Seed Color: Barbarian Blue, Black Chestnut, Castor Bean Skin, Golden, Indigo, Lacquer Black, Red Striped, Rich Black, Widower (Black and White), Yellow Dragon's Eye.

Seed Size: Big Green, Large Black, Small Blackeye, Small Blue.

Flower: Early White Flower, Large White Flower, White Flower Pure Yellow.

Hilum: Chotan White Eye, Green Eye, Purple Mouth, Rensen Brown Eye, Small Blackeye, White Eye.

Maturity: Aid For New Land, Black Sprout, Black Vegetable, Edible, Millet Friend, Plant In Millet, Plant in Wheat, Plant Between Crops, Rainy Season, Roasting, Sprout.

Habit: Climbing.

Leaf: Bamboo Leaf.

Birds: Crow's Early, Domestic Geese, Pigeon, Skylark, Swallow, Water Rail.

Animals: Deer, Horse, Mouse, Red Rat, White Horse.

Village: Anpen, Chotan, Tansen.

Superior Varieties: Great Happiness, Plentiful, Prolific, Rich, Rich and Virtuous.

Odd Names: Beheaded, Clasped Hands, Cow's Knee, Flying Fish, Flower Garden, Peaceful, South Sea, Spirit of the Wind, Turtle Nest, White Priest's Foot, Wild Boar's Hip.

JAPANESE VARIETIES OF SOYBEANS (Translation)

Abundance
Abundant Pods
Aizu
Akita Bush
Astringent
August
Bingo's White
Black
Black Autumn
Black Cake
Black Eye
Black Eye Long Pod
Black Pod
Black Pod Gold
Black Saddle
Blue
Bright Country
Brings Treasure
Brother
Brown Spotted
Bullet
Bunch
Bunching Maiden
Chiba
Chikanari
Chizuka
Cock's Comb
Covered With Frost
Crane's Egg
Crane's Friend
Dancing
Daruma
Devil Chaser
Doesn't Touch the Earth
Dove
Dove Killer
Dwarf
Early Black
Early Fox
Early Gold
Early Increase
Early Large Pod
Early Smooth
Early White Eye
Echigo
Echigo Fool
Elder Brother
Enter Priesthood
Excessive Yield
Faithful
Fall
Fan Shape Stem
Five Leaf Saddle
Foolish Green
Forage
Formosa
Fortune
Four Seeded Yellow
Fox Pod
Geisha Girl
Gingko Seed Shape
Gluten
Gold
Good Yield
Goshanari
Green Bullet
Green Eye
Green Field
Green Fool
Green Land
Green Moss
Green Non-hairy
Green Rat
Green Ribbon
Green Skin
Green Spotted
Greenish White
Green Willow
Hachiya
Hairy
Half Smooth
Hakodate Brocade
Heaven's Bird
Heavy Yield
Ike
Incense
India Ink
June
Large Bullet
Large Grain
Large Jade
Large Jewel
Large White
Large White Jade
Large White Pod
Large White Ring
Lucky
Maiden
Middle Season
Middle Season Smooth
Midseason Fox
Mink
Mink Skin
Miso
Miyashiro
Monbetsu Long Leaf
Morning Sun
Mouse
Naked Devil
Naked Green
Native
Natto
No Credit
No Eye
Non-frost
Non-hairy
October
Old Woman's Cane
One Seed
One Hundred Percent Good
One Thousand Pod
Oshu Fool
Paddy Field Boundary
Pill
Plant In May
Plateau
Pretty Flesh Color
Pretty Girl
Produces In Shady Places
Prolific
Pure Bred Red Pod
Rat Pod
Red Eye
Red Mature Pod
Red Pod
Red Stalk
Seaweed Flavor
Second Crop
Silver
Silver White
Single Stalk
Six Inch
Small Black Eye
Small Bullet
Small Donkey
Small
Small Grain
Small Jewel Flower
Small White
Smooth White
Smooth Devil
Soldier
Soy Sauce
Sparrow
Spotted
Summer
Tea Color
Three Seeded Pod
Three Hundred Pods
Through Frost
Through the Water
Tiger
Twenty Day
Two Seeded Pod
Turtle Wrinkle
Under The Snow
Under The Tree
Very Bunched Pods
Very Early Abundant
Water Caltrop
Water Field
Waxed
Wax Skin
White
White Autumn
White Ball
White Bullet
White Chestnut
White Dog's Foot
White Eye
White Flower
White Hair
White Jade
White Jewel
White Mouse Eye
White Pod
White Sprout
White Stem
White Stone
White With Black Eye
Wild Duck
Wild Goose
Without Malt
Young Crane
Yellow Fall
Yellow Jewel
Yellow Pod
Yellowish White
Zankonji

SELECTED CLASSIFICATION OF JAPANESE VARIETIES

Seed Color: Black Autumn, Black Saddle, Brown Spotted, Green Fool, India Ink, Mink Skin, Pretty Flesh Color, Silver White, Yellow Jewel, Yellowish White Blackeye.

Seed Size: Large Green, Large Jewel, Large White, Large White Ring, Small Blackeye, Small Bullet, Small White.

Seed Shape: Gingko Seed Shape, White Ball, Water Caltrop Shape.

Hilum (seed scar): Blackeye, Green Eye, No Eye, White Eye, White Mouse Eye.

Pods: Black Eye Long Pod, Black Pod Gold, Four Seeded Yellow, Fox Pod, One Seed, Red Pod, Three Seeded Pod, Two Seeded Pod, Yellow Pod, White Pod.

Pubescence: Early Smooth, Green Non Hairy, Half Smooth, Middle Season Smooth, Naked Devil, Non Hairy, Smooth White, Smooth Devil, White Hair.

Stems: Fan Shape Stem, Red Stalk, Single Stalk, White Stem.

Leaf: Five Leaf Saddle, Monbetsu Long Leaf.

Habit of Growth: Akita Bunch, Bunching Maiden, Doesn't Touch The Earth, Dwarf, Very Bunched Pods.

Maturity: August, Black Autumn, Early Gold, Middle Season, October, Very Early Abundant, Yellow Fall, Midseason Fox, Through Frost, White Autumn.

Utilization: Devil Chaser, Forage, Miso, Natto, Paddy Field Boundary, Produces in Shady Places, Soy Sauce, White Sprout.

Superior Varieties: Abundance, Abundant Pods, Brings Treasure, Early Increase, Excessive Yield, Fortune, Heavy Yield, One Hundred Percent Good, Small, Fortune, One Thousand Pod.

Animals: Early Fox, Mink, Mouse, Small Donkey, Tiger.

Birds: Crane's Friend, Dove, Dove Killer, Sparrow, Wild Duck, Wild Goose, Young Crane.

Persons: Bingo's White, Chichanari, Hachiya.

Prefectures (states): Aizu, Chiba, Echigo.

Shrines: Goshanari, Miyashiro, Zankonji.

Villages: Chizuka, Hachirihan, Iwakiri.

Odd Names: Covered with Frost, Bright Country, Elder Brother, Enter Priesthood, Heaven's Bird, Old Woman's Cane, Pretty Girl, Through the Water, Under The Snow, White Dog's Foot.

Choose your own Row Spacing with MULTIPLE-ROW POWER

Multiple-row planting and cultivating in narrow-spaced rows has proved to be a paying idea for many soybean growers. Others prefer various row spacings, from 28 to 40 inches.

A Minnesota farmer last year reported a 10-bushel increase on soybeans in narrow rows. He harvested 32 bushels per acre from 20-inch rows, planted with his rear-engine Model G Tractor and power-driven seeder. His beans planted in wide rows with a corn planter made only 22 bushels per acre.

For best results, authorities recommend that rows should be spaced to make the most efficient use of fertility, sunlight and moisture . . . so leaves of the mature plants just touch between the rows, according to one experiment station.

With the rear-engine Model G Tractor and front-mounted tools, you can plant and cultivate soybeans up to three rows at a time, or other specialized crops up to six rows at a time. Planters and cultivators attach at any point on the 60-inch tool bar. All cultivators fit the same master lift frame and you can change implements in five minutes or less. Open-front frame of the Model G gives you unobstructed crop vision.

Have the nearest Allis-Chalmers dealer show you how easily and accurately you can select your own row spacing with the rear-engine G and front-mounted implements.

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ALLIS-CHALMERS MFG. CO., Tractor Division, Dept. 54
Milwaukee 1, U.S.A.

Gentlemen:
Please send me complete illustrated booklet on the Model G.

Name .....

Address .....

NEW DIRECTOR MISSISSIPPI PRODUCER

Herbert H. Huddleston, your new director of Lamont, Miss., has been farming in the Mississippi Delta since 1933. At present he operates 1150 acres there.

But Huddleston is a native of Murfreesboro, Rutherford County, Tenn., where he attended the public school and two years of State Teachers College. He left college to enter the corn and feed milling business, which he continued for seven years before he went to the Delta. His initial purchase of Delta land was 883 acres.

As is true of other farmers in the area, Huddleston's farming has been largely devoted to the raising of cotton. But with the coming of acreage restrictions on cotton, interest has shifted to other crops, including soybeans. Huddleston has grown soybeans for hay several years, using several varieties of black beans.

Recently he has been growing yellow soybeans for the market. "With the coming of better markets for our soybeans and with yields that have run as high as 50 bushels per acre there is every reason why the Delta will stay in the production of soybeans for the oil markets," he says. "Soybeans in the Delta are considered a soil building rather than a soil depleting crop, a fact that has been proved in actual operation."

In addition to being the youngest director of the American Soybean Association in point of service, Huddleston is president of Bolivar County Farm Bureau, director of the Mississippi Farm Bureau and the Delta Council, vice president of the Delta Cooperative Compress, past president of the Greenville Kiwanis Club, and a director of the Washington County YMCA.

—sbd—

GENERAL MILLS BUILDS

A soybean processing plant, oil refinery and grain elevator will be built by General Mills, Inc., at Rossford, Ohio, on property adjacent to the company's Larro formula feed plant.

Whitney H. Eastman, president of the company's chemical division, said that the solvent extraction plant will have a capacity of 12,000 bushels of soybeans daily and that the elevator will have storage capacity of 1½ million bushels. The oil refining unit, he said, will be adequate to refine the entire crude oil output of the plant.

The processing plant will supply part of the company's requirements for soybean oil meal. Plans call for completion of the plant in time to put it in operation for the 1951 soybean harvest.

—sbd—

OIL CHEMISTS MEETING

Committee appointments for the 1951 spring meeting of the American Oil Chemists Society, to be held in New Orleans on May 1-3 at the Roosevelt hotel, are announced. J. A. Kime of the Southern Regional Research Laboratory will be general chairman.

His committees will be headed by T. H. Hopper as program chairman, W. S. Singleton, registration, C. L. Hoffpauir, publicity, J. J. Ganucheau, annual dinner, F. G. Dollear, golf, A. F. Freeman, hotel reservations, E. A. Gastrock, treasurer, and Mrs. Gastrock, ladies' entertainment.

MOVIE TELLS STORY OF SOYBEAN GROWING

A new colored sound 16 mm. soybean movie was ready for distribution about January 1. It is being produced by the Reid H. Ray Film Industries of St. Paul, Minn., for the National Soybean Crop Improvement Council.

This is an educational story of growing soybeans. It is in full color and carries an intriguing human interest story of a feature news reporter who is assigned to write the story of soybeans for his paper. Good cultural practices, leading to better soybean growing, are emphasized.

Cooperating with the U. S. Regional Soybean Laboratory and the University of Illinois, close-ups of crossing soybeans for the development of new improved varieties are shown, also erosion control and runoff studies, the effect of the soybean crop on heavy soils, and activity of the nitrogen gathering nodules on its roots.

Interesting steps in the processing of soybeans are shown in different mills and an insight is given into the vital role of soybean oil meal in providing protein feeds for the production of livestock and poultry on American farms.

This picture will be available for schools, farm meetings, vo ag, 4-H, FFA and veterans classes, granges, farm bureaus, county agent meetings, and other farm gatherings where an educational sound colored picture is wanted. Films will be available to agricultural leaders through the film libraries of the state agricultural colleges in most of the soybean producing states and possibly through one of the leading film distributing agencies. Soybean processing plants will be glad to provide this picture for meetings in their local areas.

The film will also be distributed by the American Soybean Association. Just write the Association at Hudson, Iowa, if you want to book the film for local showing.

—s b d—

FOR PROCESSORS

Oakite Products, Inc., New York, has announced the publication of a special service report describing specialized materials and methods designed to permit faster, easier removal of soils from edible oil processing equipment.

This service report emphasizes the importance of regular cleaning to maintain maximum operating efficiency of equipment used in extracting and processing oil from cottonseed, soybeans, corn and the like. Specific material and procedure recommendations are presented for cleaning such equipment as, for example: distillation columns (soybean); condensers (soybean); storage tank interiors (vegetable oil); extractors (soybean oil); separators (soybean and cottonseed oil); vacuum pans and lines (soybean, shark liver oil); and deodorizers (vegetable oil). Also reported upon are simplified methods for washing filter cloths (cottonseed oil); cleaning filter press plates (corn oil); cleaning oil drums (corn oil); and for other frequently encountered cleaning tasks in edible oil processing plants.

Readers desiring free copies may address Oakite Products, Inc., 157 Thames St., New York 6, N. Y.

—s b d—

World cottonseed production, estimated at 12.8 million short tons by the Office of Foreign Agricultural Relations, is 11 percent less than in 1949-50 and 16 percent below the 1935-39 average.

NEED PROTECTION FROM FOOD CHEMICALS

"Literally millions of pounds of the so-called chemical emulsifiers have been marketed for use in a variety of foods; the manufacturers have been and are still able to manufacture them without official sanction as to their complete nontoxicity," said E. W. Brockenbrough, president Institute of Shortening and Edible Oils, Inc., Washington, D. C., in testimony before the U. S. Senate committee to investigate the use of chemicals in food products Dec. 15.

"It should never have been possible for products of this type to get on the market in the first place," said Brockenbrough. "While the bread standards proceeding will apparently take care of the existing situation with respect to bread, there exist numerous foods which either have not been or will not be standardized, and in which these same chemicals can be used with impunity."

To correct this weakness Brockenbrough urged an amendment to the Food and Drug Act which would provide that no chemical shall be added to food until scientific evidence of its complete harmlessness is submitted by the manufacturer and approved by the administrator of the act. He also suggested that the committee consider requiring that the manufacturer show that his product does not lend itself to debasement or deception as well as that it is completely harmless.

"I am satisfied that the debasement of our food supply by chemical additives is a threat to the American public, irrespective of the question of toxicity," said Brockenbrough.

He said the shortening industry in 1949 processed over 5½ billion pounds of cottonseed, soybean, corn, peanut oils and animal fats. "In 1942 about 37 percent of the domestic consumption of lard and shortening alone was used in commercially prepared baked goods and prepared mixes. This percentage increased during the war years."

—sbd—

Please mention the Soybean Digest when writing to our advertisers.

1951 MACHINE PROGRAM

Farmer needs for machinery and equipment will continue to rise as labor-saving machinery is required to replace workers who leave farms for industrial centers and military service, a special report by Farm Equipment Institute, Chicago, points out. The report estimates that farmers will need as much farm machinery, equipment and repairs to meet their overall needs in 1951 as they obtained in 1950.

To produce this amount will require at least 2.7 million tons of steel, the report states.

"It is becoming apparent that farm equipment manufacturers will be increasingly handicapped in obtaining necessary materials for farm equipment production, if the government designates more and more producers of other civilian goods to receive preferential treatment from suppliers.

"The industry requires only 3.8 percent of the finished steel output of the country and employs less than four-tenths of one percent of the nation's gainfully employed. So much in the way of farm production depends on so little in the way of material and manpower that it would seem wise to plan for a safe agricultural program and for an adequate equipment program with which to produce it."

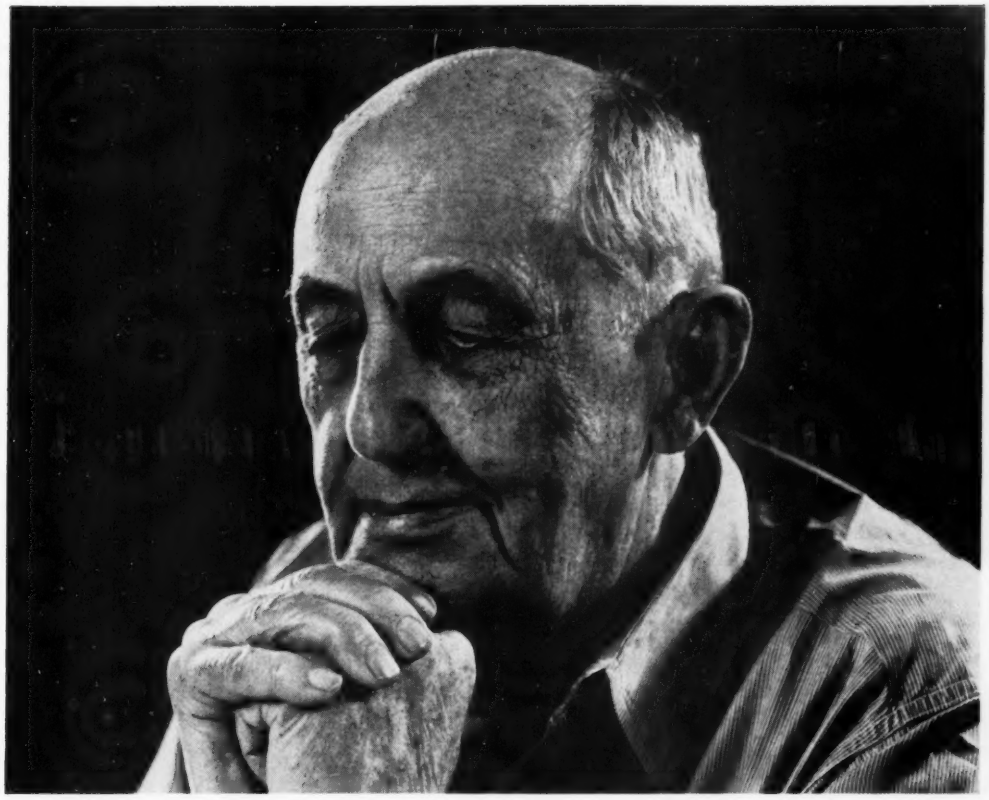
—sbd—

NEW COTTONSEED MEAL

An improved cottonseed meal, which can be fed freely to hogs and chickens as well as to cattle, has been produced experimentally by a modification of ordinary screw-pressing methods, reports Dr. P. V. Cardon, Agricultural Research Administrator of the U. S. Department of Agriculture.

The method for producing this new cottonseed meal was developed by scientists of the New Orleans Laboratory, working in cooperation with the South Texas Cotton Oil Company of Houston, Tex. It is a practical result of research at the laboratory which showed that processing conditions greatly affect the nutritive value of cottonseed meal.

Ton lots of the improved meal have been produced for extensive tests of its possibilities as livestock feed. A number of state experiment stations cooperated in conducting these feeding tests. Their results indicate that the new type meal can be used successfully in the diets of non-ruminant animals (such as swine and poultry) in much higher concentrations than ordinary cottonseed meal.



"... and Give Our Children the Chance I Had"

Listen as this 83-year-old retired farmer gives thanks for what America has given him. As with so many of us, he remembers youth when he prays: "May all young folks today continue to live in freedom, and grow and prosper under the same American system that helped me."

It is right to pray for our children. If socialism comes to America, the young will lose the most. Those who are older lose the least. Look at the record in countries where the easy promises of socialism have found root, have killed initiative.

We should pray now that life will be full of opportunity for babies, teen-agers, newlyweds and our war veterans who are only now getting their start on their farms or other businesses, or in their new jobs. At the very least, we owe them a full chance to share in the kind of life that has made this country the envy of all the world.

Let's stop socialism now. Let's not handicap our children. Let's remember that America grew great on the incentive system. Let's not imitate the "isms." Instead, let's imitate our own success.

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This Advertisement also appears in The Farmer, Wallace's Farmer, The Dakota Farmer and 12 other publications

New Indiana Storage

—Photo courtesy Grain & Feed Journals Consolidated

The grain tanks occupying the center of the above picture were recently added by the Farmers Grain & Coal Co., Franklin, Ind., just before the bumper soybean crop demanded storage. The tanks are of reinforced concrete, 6 inches thick and are six in number, the second row being hidden in the picture. Total capacity of the six new bins is 50,000 bu. The new tanks were erected by the Winamac Construction Co., Winamac, Ind. Machinery installation and engineering work were done by C. J. Polstra, Burrows Equipment Co., Evanston, Ill. Loren Hartley is manager of the plant.

ALABAMA STORAGE

The Port of Mobile News reports that the Reconstruction Finance Corp. has granted a loan of 1.4 million dollars for construction of a grain elevator at Alabama State Docks in Mobile.

State Docks Director E. S. Morgan said, following the announcement of the loan, about $600,000 will be spent by the docks to dredge a channel near the grain pier and to build wharves adjacent to the elevator.

The loan for the grain elevator was granted to E. V. Butler, Memphis, Tenn., and Jackson Davis and Thomas B. Allen of Matthews, Mo. The three men intend to form a corporation known as the Alabama Elevator Co.

Operation of the grain elevator, Morgan predicted, will increase exports through the port of Mobile about 40 percent.

—s b d—

KANSAS FEED TESTS

Heifers fed 1 pound of either cottonseed meal, soybean oil meal or linseed meal gained on the average about a quarter of a pound more per head daily than heifers fed one and three-quarter pounds of either dehydrated alfalfa pellets (15.4 percent protein) or dehydrated brome grass pellets (16.4 percent protein), it was revealed in reports of feeding tests conducted at Kansas State College.

The addition of either dehydrated alfalfa pellets or brome grass pellets to the ration decreased roughage consumption slightly.

New U. S., World Soy Crop Records

Soybean production in 1950 reached an all-time high. The crop this year is estimated at 287 million bushels—56 million bushels above the previous record crop of 1949, according to the final report of the crop reporting board of U. S. Department of Agriculture. The 1939-48 average production is 164.5 million bushels. This year's bumper crop came as a result of a large acreage harvested for beans and a relatively high yield of 21.6 bushels per acre. The yield this year, however, is well below the record of 22.7 bushels harvested in 1949. The 10-year average yield is 18.8 bushels per acre.

A total of 15.4 million acres of soybeans were planted for all purposes in 1950, about 25 percent more than in 1949. This is a near record, being exceeded only by 20 thousand acres in 1943. The 13.3 million acres actually harvested for beans is a record and is about one-third larger than in 1949.

The increase in acreage this year came largely from land diverted from crops under acreage allotments, especially corn, cotton, and in limited areas wheat and peanuts. Also, as soybeans can be planted later than most spring planted crops, they were used to take the place of oats and other crops which could not be planted because of poor weather in some areas. The relatively high price of soybeans last spring was also an incentive to increase plantings.

The heavy producing North Central states harvested more than 250 million bushels of soybeans this year or about 42 million bushels more than in 1949. Illinois alone had a crop of 95 million bushels, although the yield of 24 bushels per acre was two bushels less than the record set last year. Production was well above last year in all the North Central states but yields per acre in most states ran lower. The exceptions were Missouri, Nebraska, and Kansas, where record yields were obtained.

The South Atlantic states had a good season with yields averaging higher than in 1949 but acreage increases there were not large. Production for the area was near 10 million bushels, about 2 million bushels more than in 1949.

The South Central states showed the highest percentage increase in

SOYBEANS FOR BEANS

State	Acreage harvested†			Yield per acre			Production		
	Average 1939-48	1949	1950	Average 1939-48	1949	1950	Average 1939-48	1949	1950
	Thousand acres			Bushels			Thousand bushels		
N. Y.	10	5	6	14.8	18.0	18.0	156	90	108
N. J.	10	12	14	15.5	16.5	19.0	160	198	266
Pa.	23	16	17	15.2	17.0	17.0	349	272	289
Ohio	906	858	1,056	19.3	24.0	22.0	17,547	20,592	23,232
Ind.	1,228	1,442	1,591	18.4	24.0	22.0	22,958	34,608	35,002
Ill.	3,044	3,287	3,948	21.2	26.0	24.0	64,513	85,462	94,752
Mich.	94	66	117	16.4	23.0	19.5	1,525	1,518	2,282
Wis.	35	15	24	14.2	16.5	14.5	490	248	348
Minn.	377	709	1,057	15.4	18.0	15.5	5,995	12,762	16,384
Iowa	1,471	1,340	1,921	19.6	23.0	22.0	28,766	30,820	42,262
Mo.	507	857	1,191	15.0	21.0	23.0	8,046	17,997	27,393
N. Dak.	* 6	20	41	*11.0	12.0	10.5	* 64	240	430
S. Dak.	* 18	29	66	*14.1	13.0	12.5	* 248	377	825
Nebr.	25	22	46	15.6	22.0	24.0	389	484	1,104
Kans.	155	237	359	11.1	14.5	18.0	1,715	3,436	6,462
Del.	34	44	46	12.5	15.0	14.0	432	660	644
Md.	30	34	41	13.4	16.0	16.0	405	544	656
Va.	76	117	133	14.8	18.0	19.0	1,128	2,106	2,527
W. Va.	1	1	1	12.9	13.0	13.5	14	13	14
N. C.	222	264	301	12.0	16.0	17.0	2,675	4,224	5,117
S. C.	14	25	44	7.9	11.0	12.0	113	275	528
Ga.	12	14	24	6.8	8.0	8.5	80	112	204
Ky.	69	119	108	15.2	18.5	17.5	1,102	2,202	1,890
Tenn.	44	125	150	13.5	20.0	21.0	642	2,500	3,150
Ala.	28	61	90	11.5	17.0	18.0	371	1,037	1,620
Miss.	90	108	282	12.8	16.5	24.0	1,212	1,782	6,768
Ark.	199	291	556	14.6	20.0	21.0	2,980	5,820	11,676
La.	28	25	40	12.8	15.0	18.0	362	375	720
Okla.	6	13	21	7.4	11.0	17.0	46	143	357
U. S.	8,764	10,156	13,291	18.8	22.7	21.6	164,491	230,897	287,010

† Equivalent solid acreage. (Acreage grown alone, with an allowance for acreage grown with other crops. * Short-time average.

production from a year ago. The area contributed 26 million bushels to the United States production compared to only 14 million last year. Arkansas, with nearly 12 million bushels this year, had more than doubled last year's outturn. Mississippi had nearly 7 million bushels in 1950, compared with less than 2 million last year. These increases came as a result of sharply increased acreage and from exceptionally high yields on the Delta land, much of which was diverted from cotton in 1950.

World Production

Soybean production in 1950, estimated at 626 million bushels, is a world record and surpasses the previous high (1948) by 63 million bushels according to information available to USDA's Office of Foreign Agricultural Relations. The United States and Canada harvested their largest crops and indications point to a near-average crop in China. About 93 percent of the 1950 output is in the U. S., China and Manchuria.

Canada's 1950 soybean outturn is more than 3 million bushels from 142,000 acres, representing increases from last year of 17 and 36 percent in production and acreage, respectively. The expansion in acreage is primarily the result of newly developed soybean varieties that mature early and are adaptable to central and eastern Ontario as well as the southwestern area.

The United States soybean production of 281 million bushels is a record for this country. Nearly 13 million acres will be harvested but the yield per acre in most of the heavy producing states is lower than a year ago.

According to information available, soybean production is declining in European countries and possibly in the Soviet Union.

While official estimates are not available at this time, it is believed that both China and Manchuria have larger crops than in 1949. China's production may be around 200 million bushels compared with an estimate of 179 million for last year. In the province of Shantung, where around 80 percent of China's soybeans are produced, growing conditions were generally favorable. Manchuria's 1950 production plan called for more than 100 million bushels against 66 million last season.

Japan's 1950 harvest of 12 million bushels is 40 percent greater than last year and the largest in a decade. Turkey produced 73,000 bushels compared with 50,000 in 1949 and 37,000 in prewar years.

Indonesia's 1950 soybean production probably exceeded the 9.7 million bushels produced last year. Plantings in the important producing areas were reported to be substantially larger than in 1949.

Soybean cultivation has been only moderately successful in Africa. Tanganyika produced 67,000 bushels in 1950 and 36,000 in the preceding year. The Union of South Africa has not reported 1950 production but in 1949 the outturn was 80,000 bushels.

Colombia is interested in growing soybeans. As part of a campaign to improve the diet of low income families in Bogota and the surrounding area the government plans to supply farmers with seed and to guarantee purchase of the crop.

SOYBEANS: ACREAGE, YIELD PER ACRE, AND PRODUCTION IN SPECIFIED COUNTRIES, AVERAGE 1935-39, ANNUAL 1947-50 1/

Continent and country	Acreage 2/			Yield per acre			Production		
	Average 1935-39 1,000 acres	1949 1,000 acres	1950 3/ 1,000 acres	Average 1935-39 bushels	1949 bushels	1950 3/ bushels	Average 1935-39 1,000 bushels	1949 1,000 bushels	1950 3/ 1,000 bushels
North America									
Canada	4/ 10	104	142	20.7	25.1	21.4	4/ 207	2,605	3,039
United States 5/	3,042	9,912	12,937	18.5	22.4	21.7	56,167	222,305	281,133
Europe									
Bulgaria	34	....	....	12.1	....	....	416	....	....
Hungary	6/ 7	....	....	16.9	....	....	6/ 125	....	....
Italy	7/	3	2	12.1	18.3	24.7	4/ 1	52	46
Rumania	4/ 49	....	....	9.5	....	....	4/ 463	....	....
U. S. S. R.									
(Europe and Asia)	6/ 607	....	....	....	....	....	6/ 5,805	....	....
Asia									
Turkey	6/ 1	5	5	29.0	10.6	14.9	6/ 37	50	73
China (22 provinces)	12,411	11,762	....	16.7	15.2	....	207,666	179,200	....
Manchuria	8,992	5,500	....	16.8	12.0	....	151,214	66,000	....
Japan	4/ 812	648	734	15.4	13.8	17.1	12,499	8,928	12,566
Taiwan	4/ 17	....	....	8.9	....	....	4/ 151	....	....
Korea 8/	4/ 1,921	658	....	10.0	10.0	....	17,654	6,654	....
Indonesia 9/	889	872	....	10.9	11.2	....	9,731	9,737	....
Africa									
Tanganyika	....	....	....	....	....	....	....	36	67
Union of South Africa	....	10/ 15	....	....	5.3	....	....	80	....
World total 11/	29,100	31,300	36,130	....	....	....	463,900	510,170	626,000

1/Years shown refer to years of harvest. Southern Hemisphere crops which are harvested in the early part of the year are combined with those of the Northern Hemisphere harvested the latter part of the same year. 2/Figures refer to harvested areas as far as possible. 3/Preliminary. 4/Average of less than 5 years. 5/Acreage harvested for beans. 6/One year only. 7/Less than 500 acres. 8/Beginning with 1947 figures represent South Korea only. 9/Java and Madura only prior to 1948. 10/Planted acreage. 11/Includes estimates for the above countries for which data are not available and for minor producing countries.

Office of Foreign Agricultural Relations. Prepared or estimated on the basis of official statistics of foreign governments, reports of United States Foreign Service officers, results of office research, or other information. Prewar estimates for countries having changed boundaries have been adjusted to conform to present boundaries, except as noted.

OILSEEDS

High World Peanut Production

World peanut production in 1950 may be the largest on record, according to preliminary information available to the Office of Foreign Agricultural Relations, USDA. Total outturn is forecast at 11.4 million short tons of unshelled nuts compared with the revised estimates of about 10.9 and 10.7 million tons in 1949 and 1948, respectively, and 9.6 million prewar.

The over-all expansion is attributed to anticipated increases in India, China, and Nigeria. Reductions are reported in the United States, Brazil, Argentina, and in a number of minor producing countries.

North American production is expected to be down approximately 65,000 tons from 1949, principally the result of the decrease in the United States from 937,900 to 885,700 tons, on the basis of Nov. 1 prospects. This is 6 percent less than last year's output and 9 percent less than the 10-year average production. Acreage allotments and marketing quotas were in effect for the current crop, and a 9 percent acreage reduction accounts for the lower outturn.

Standards Recognize MSG

New standards announced by the U. S. Food and Drug Administration for mayonnaise, French dressing and salad dressing recognizes the value of monosodium glutamate as a taste improving ingredient.

R. L. Nagle, industrial sales executive with the A. E. Staley Manufacturing Co. which produces monosodium glutamate under the trade name, "Zest," cited the government order as confirmation of claims which have been made for the new product.

The new standards permitting the use of monosodium glutamate as an optional ingredient in the three products became effective Nov. 10.

"Experimental use of monosodium glutamate demonstrated it to be a suitable taste imparting ingredient," the government order declared.

A derivative of vegetable protein including soybean, monosodium glutamate has long been a popular flavor improver in the Orient. The major market for the product to date has been among food processors and canners, according to Nagle, but distribution through retail outlets is increasing.

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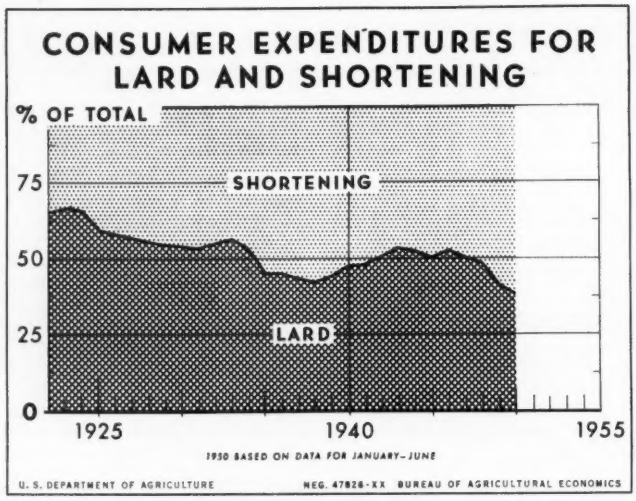

Consumer preference has been shifting from lard to shortening for a long time, reports Bureau of Agricultural Economics. In January-June 1950 consumer expenditures for lard were less than 40 percent of the total for lard and shortening, compared with nearly two-thirds in the early 1920's. Both the consumption and the price of lard have been declining in relation to the consumption and price of shortening.

BUTTER PRODUCT

A new butter product, "Emulsified Butter Shortening," intended principally for use in commercial bakeries, has been announced by the American Butter Institute.

Emulsified butter shortening will facilitate the production of butter-rich cakes and pastries, it said. The natural flavor and other important characteristics of butter are imparted through use of the product.

The new product contains a minimum of 80 percent butterfat—the same as butter itself. Manufacturing processes approved by the Food and Drug Administration result in a product which is superior to the natural baking qualities of butter itself.

CYPRESS BRAND

SOYBEANS FOR SEED

HIGHEST QUALITY SEEDS

GROWN ON OUR FARMS

The HAWKEYE, KOREAN, CYPRESS NO. 1, ADAMS and WABASH listed in order of their maturity, were all excellent yielders on Valley Farms and are widely adapted through Central Illinois and Missouri.

For the South, we recommend the OGDEN, the S-100 and where adapted, the WABASH which yields about as well as the S-100 and has about the same maturity but has a much higher oil content.

Our supply of certified varieties is rapidly being depleted. Therefore we cannot guarantee the availability of all the varieties listed.

— Mail Coupon Today for Latest Prices —

Cypress Land Farms Co.
314 Merchants Exchange
St. Louis 2, Mo.

Date.....

Please send me your latest Wholesale Prices for Cypress Brand Soybeans grown on Valley Farms and Cypress Land Farms.

Firm Name.....

Address.....

.....

Variety.....

PUBLICATIONS

Do Whole Soybeans Affect Milk Flavor?

Two experiments have been conducted at Iowa State Agricultural Experiment Station to determine whether soybeans adversely affect the flavor of milk.

The first was run during April to July. A grain ration containing cracked soybeans was compared with one containing linseed oil meal. Alfalfa hay was used as the only roughage. The soybean ration yielded milk with flavor scores equal to those of milk produced on a linseed meal ration.

The second experiment extended from November through May. Alfalfa hay and linseed oil meal were used as control feed. Neither soybeans nor soybean hay adversely affected the flavor of the milk.

THE INFLUENCE OF CRACKED SOYBEANS, SOYBEAN HAY AND VARIOUS KINDS OF CONTAINERS ON THE FLAVOR OF MILK. By E. E. Bartley, J. W. F. Chin, C. Y. Cannon and E. W. Bird, Iowa Agricultural Experiment Station. Journal of Dairy Science, Jan. 1950.

THE INFLUENCE OF CRACKED SOYBEANS AND OTHER FACTORS UPON FLAVOR OF MILK AND THE IODINE VALUE OF MILK FAT. By J. B. Frye, C. Y. Cannon and E. W. Bird. Journal of Dairy Science. Vol. 33, No. 4, Apr. 1950. American Dairy Science Association, N. Queen St. and McGovern Ave., Lancaster, Pa.

There was no indication that cracked soybeans produced an undesirable flavor in milk when constituting about 11 percent of the concentrated mixture, in feeding trials with 20 Holstein cows of the station herd at Iowa State College.

Processes Compared

Eight different commercial soybean oil meals have been tested by the division of poultry husbandry of the California Agricultural Experiment Station at Berkeley to determine their nutritional values as poultry feed.

Two samples were obtained from the Eastern Seaboard and six in California. Five were prepared by the solvent process and three by the screw press method. Color of the samples varied from a light yellow to dark brown.

Whole soybeans were heat processed in the laboratory and included in the experiment.

No essential differences were observed between the two types of meal. Supplementing with lysine did not improve the nutritional value of the meals. This indicated that their lysine content was not excessively damaged during processing. All eight meals tested were high quality products.

SOYBEAN AS POULTRY FEED. By Dudley C. Ambrose. Co-op Poultryman. May 1950.

Heat Treatment

While some legumes including soybeans are improved nutritionally by heat treatment, others are not.

In a Nebraska Agricultural Experiment Station experiment the seeds of 11 species of legumes were fed, raw and autoclaved, to rats as the sole source of protein at a 12-percent-protein level.

Of a total of 17 species of legume seeds investigated in this and other studies, eight were reported to be improved by autoclaving, while nine were not.

No correlation was observed between the effect of autoclaving on nutritive value and the presence or absence of the trypsin inhibitor in the raw legume seed.

THE NUTRITIVE VALUE OF LEGUME SEEDS. X. EFFECT OF AUTOCLAVING AND THE TRYPSIN INHIBITOR TEST FOR 17 SPECIES. By Raymond Borchers and C. W. Ackerson, Nebraska Agricultural Experiment Station, Lincoln. Journal of Nutrition, Vol. 41, No. 2, June 1950. Wistar Institute of Anatomy and Biology, Philadelphia, Pa.

Lactation Factor

Nine brewers' yeasts, including one depurinated yeast, tested as supplements to a basal yellow corn-soybean oil meal-alfalfa ration for rats, failed to furnish the factor or factors needed for successful reproduction and lactation, in experiments at the University of Wisconsin. Fresh beef liver at five to 10 percent of the ration and five percent fish solubles furnished the required factor or factors.

In the relatively few animals used, vitamin B_{12} fed at a level similar to that of the B_{12} content of five percent fish solubles, or injected subcutaneously at one-half the oral dose, supported reproduction and lactation performances in rats equal to those given by five percent fish solubles under the conditions of these experiments. This suggests that the reproduction and lactation factor in fish solubles may well be vitamin B_{12}.

CONTRIBUTIONS OF BREWERS' YEAST TO A DIET DEFICIENT IN REPRODUCTIVE FACTORS. By Ruth E. Nell and Paul

H. Phillips, department of bio-chemistry, College of Agriculture, University of Wisconsin, Madison. Journal of Nutrition, Wistar Institute of Anatomy and Biology, Philadelphia, Pa. Sept. 11, 1950.

Market for Butter

A policy of supporting butter prices may seriously impair the future market for butter, a study of the fat-eating habits of Pittsburgh people by Pennsylvania State College indicates.

Workers visited 1,296 families living in Pittsburgh in June 1949 to study their fat consumption and learn their opinions about margarine and butter. They found there had been a considerable shift from butter to margarine since before the war, and almost half of the butter users who had tried margarine had continued to use it at least in part.

The higher income families used more butter and less margarine, especially on the table, than lower income families, and differences also existed among racial and nationality groups. Families using both products were the ones most willing to vary consumption in response to changes in price.

Users of margarine indicated that they thought the service of coloring was worth only about 3 cents a pound to them, but colored margarine appeared to have more attraction for many consumers now using butter than this might indicate.

COMPETITION BETWEEN BUTTER AND MARGARINE IN PITTSBURGH, JUNE 1949. Bulletin 528, June 1950. Pennsylvania State College School of Agriculture, State College, Pa.

Soy Flour in Naples

Because the diet of infants and children in Naples in 1945 was deficient in protein and in other ways, a study was made of the results of supplementing the 70 percent white flour furnished by UNRRA with a high-protein flour.

Four different flours were studied: soybean, wheat germ, corn germ and sunflower seed. It was found that flour that contained 10 percent of either wheat germ or the low-fat soya produced bread and pasta acceptable to Italians, both adults and children.

OBSERVATIONS ON PROTEIN IMPROVEMENTS OF LOW-EXTRACTION WHEAT FLOUR. By Ruth Flumerfelt Bailliette, Pasquale deCaprio and Elmer L. Sevringhaus. Journal of the American Dietetic Association, Aug. 1950. Chicago, Ill.

Soy Sauce in China

Uncooked soy sauce manufactured in China has the reputation of transmitting gastro-intestinal bacterial infections.

A worker in Peking Union Medical College examined 51 samples of soy sauce obtained from manufacturers or grocers and found positive bacterial cultures in 35 percent of the samples examined. This would seem to pose a serious problem in public health in China, since uncooked soy sauce is frequent in the Chinese diet.

BACTERIAL EXAMINATION OF SOYBEAN SAUCE IN PEKING. By Fu-Sheng Wang, department of bacteriology and immunology, Peking Union Medical College, Peking, China. Chinese Medical Journal. Vol. 67. Oct. 1949.

Protein in the Diet

The modern concept of protein supplementation in the diet is a useful and resourceful tool to the dietician. Its practical application will require some revision in methods of menu planning. Protein foods can no longer be evaluated singly in terms of nutritive value, but must be viewed in

the light of their possible supplemental value to the other proteins of the diet.

Through the use of this new nutrition tool it will become possible to plan diets around cheap and abundant foodstuffs. Such foods although frequently of inferior protein quality, can be made the nutritional equivalent of expensive or scarce top quality protein foods by combining them with supplementary proteins.

THE UTILIZATION OF DIETARY PROTEIN. PROTEIN SUPPLEMENTATION. By Ruth Woods. Borden's Review of Nutrition Research. Vol. XI, No. 4. May 1950, 350 Madison Ave., New York 17, N. Y.

Fusarium on Soybeans

There are definitely two races of fusarium wilt that attack cowpeas and soybeans, work at the South Carolina Experiment Station indicates.

Race 1 obtained from both cowpeas and soybeans caused wilting of some varieties of both. But race 2, obtained only from cowpeas, caused severe wilting only of some varieties of cowpeas.

Cowpea wilt is rather widely distributed, but soybean wilt has a more limited range and is reported only in South Carolina, North Carolina, Louisiana and Alabama.

Observations of many varieties of soybeans in the field and the inoculation of plants of a few varieties in the greenhouse indicated that most varieties may be wilt resistant.

BIOLOGICAL RACES OF THE FUSARIUM CAUSING WILT OF COWPEAS AND SOYBEANS. G. M. Armstrong and Joanne K. Armstrong. Phytopathology, Vol. 40, No. 2, Feb. 1950.

Blackpatch

Many legumes have been found to be susceptible to blackpatch fungus. These include clovers, soybeans, cowpeas, kudzu and blue lupine.

The disease was first found on soybeans in Aug. 1948 at Experiment, Ga. The lesions resemble those of frogeye but usually are more angular and less regular in size, and have the characteristic dark-brown-to-black aerial hyphal strands of the blackpatch fungus on the surface.

BLACKPATCH OF SOYBEAN AND OTHER FORAGE LEGUMES. By J. L. Weimer. Phytopathology. Vol. 40, pages 782, 784.

Cottonseed Shifts

Sharp changes in the production of cottonseed in the various areas are analyzed in a report by the U. S. Department of Agriculture. Information in the report, based on a Research and Marketing Act project, covers the downward trend of cottonseed production during the 2 decades ending in 1947 and the sharp upturn in 1948 through 1949. Production data in the report show increases or decreases of more than 50 percent in some areas.

For the entire country, average seed output in the years 1943-47 was nearly a third less than in 1928-32. Accordingly, about one-third less crushing capacity was needed in the later period. The irrigated western cotton lands, however, show a 54 percent increase in seed production in 1943-47 as compared with 1928-32. Production in the Mississippi Delta lands was about the same in the two periods.

During the period of low cottonseed production, crushing mills generally had to operate at a much lower level of output with about the same overhead expense.

COTTONSEED SUPPLY AREAS. For a copy write Information Branch, Room 2608, Production and Marketing Administration, U. S. Department of Agriculture, Washington 25, D. C.

Miscellaneous

SALES AND BUSINESS FORECASTING IN CHEMICAL PROCESS INDUSTRIES. By Robert S. Aries and William Copulsky, R. S. Aries and Associates, consulting engineers and economists, New York City, N. Y. 135 pages. $5. Chemonomics, Inc., 400 Madison Ave., New York 17, N. Y.

Tells what forecasting is, methods, advantages, specific applications in chemical process industries.

DRYING OILS IN THE FLOOR COVERING INDUSTRY. By G. A. O'Hare, Congoleum-Nairn, Inc., Kearney, N. J. Journal of the American Oil Chemists Society, Chicago 1, Ill. Nov. 1950.

THE PRESENT AND FUTURE OF DRYING OILS. By S. O. Sorenson, Archer-Daniels-Midland Co., Minneapolis, Minn. Journal of the American Oil Chemists Society, Chicago 1, Ill. Nov. 1950.

VEGETABLE OIL PAINTS. By L. L. Carrick, University of Michigan, Ann Arbor, Mich. Journal of the American Oil Chemists Society, Chicago 1, Ill. Nov. 1950.

REFINING OF DRYING OILS. By Max Kantor, northwest linseed division, Falk & Co., Minneapolis, Minn. Journal of the American Oil Chemists Society, Chicago 1, Ill. Nov. 1950.

THE USE OF STYRENE IN PROTECTIVE COATINGS. Paint and Varnish Production Manager, Riverside, Conn. Sept. 1950.

Commercial styrenated oils are based largely on soya or dehydrated castor oils.

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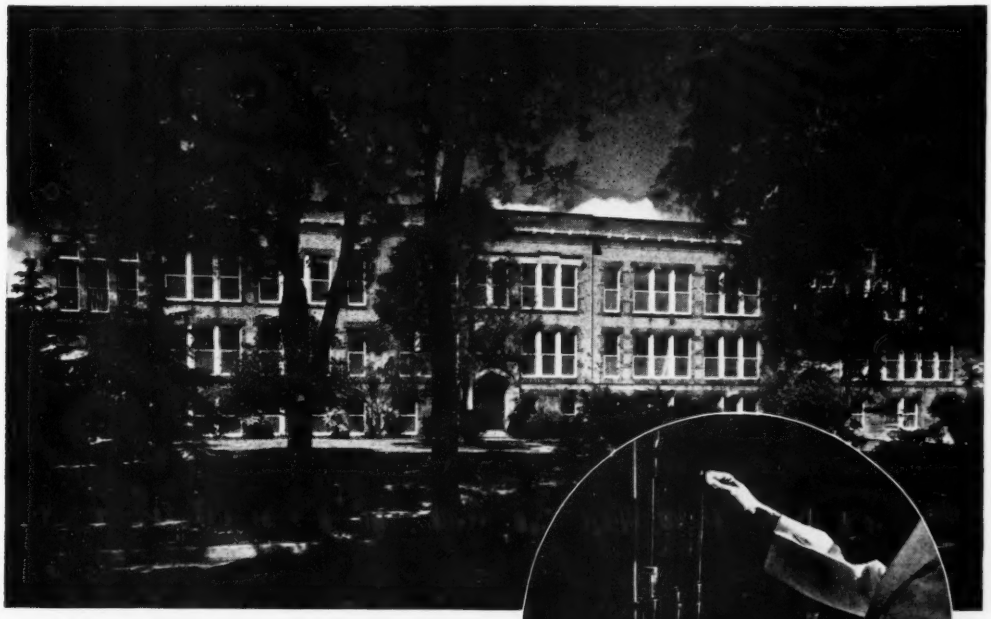

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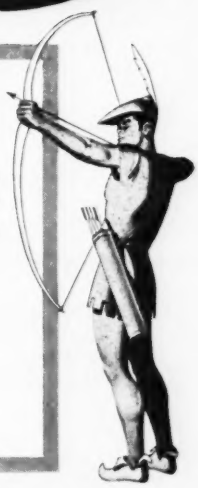
For 25 years, ADM has been a leader in creating new uses for the soybeans you grow. Dozens of new products born in this famous laboratory and produced in ADM plants across the nation help fill vital needs in our everyday life. This is the way markets are built . . . and with each new product created by ADM research, the market for your soybeans has grown.

Although ADM is proud of the part it has played in the past, its attention is always on the future. Today, ADM research men are busier than ever . . . learning new secrets . . . developing new products . . . creating new markets . . . for YOU.

Some ADM Products Made from Soybeans

- ADM Soybean Brew Flakes
- Archer "C" (Cooking Oil)
- Archer "S" (Salad Oil)
- Archer 41% Soybean Oil Meal
- Archer 44% Soybean Oil Meal, Pea-Size, Pellets, Flakes
- Archer 50% Low Fibre Soybean Oil Meal
- Archer Quality-First Feeds
- Arlecin (Soybean Lecithin)
- Bakers Nutrisoy
- Daniels' Supreme
- Kaysoy
- Nutriwhip
- Packers Granular
- Paint Vehicles
- Soya Fatty Acids
- Soy Flour



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GRITS and FLAKES... FROM THE WORLD OF SOY

Recently reelected vice presidents of the Flax Institute of the U. S. include: T. L. Daniels, president of Archer-Daniels-Midland Co., Minneapolis; and A. C. Arny and E. C. Stakman of the University of Minnesota. New scientific advisers are Egbert Frayer, Buffalo, N. Y.; and C. W. Reddy and Iver J. Johnson of Iowa State College.

* * * *

Dr. W. L. Burlison, head of the University of Illinois department of agronomy, has been made an honorary member of the Illinois Seed Dealers Association, for long and outstanding service to agriculture and the seed industry.

* * * *

New members on the American Feed Manufacturers Association Nutrition Council include Dr. J. L. Krider, McMillen Feed Mills, Decatur, Ind. Membership now is at a record high of 77 men. Dr. H. Ernest Bechtel of the Larrowe division of General Mills, Inc., Detroit, is chairman.

* * * *

E. A. Woodard has announced that he has bought the interest of others in Woodbach Brokers, Corn Exchange Bldg., Minneapolis, Minn., and is now sole owner of the brokerage concern. The company deals in all types of feed ingredients.

* * * *

Quincy Soybean Products Co., Quincy, Ill., has petitioned the city council for permission to install an overhead conveyor crossing Front St., to enable unloading of soybeans from railroad cars and transfer across the street to concrete bins at the plant. Plan includes the future construction of additional large concrete bins.

* * * *

Morgan Oil & Refining Co., Farmville, N. C., has taken over the soybean processing operations of the Farmville Oil & Fertilizer Co. at Farmville, according to Irvin Morgan, Jr., president. Firm operates three hydraulic presses and manufactures "Jocko" soybean oil meal.

* * * *

A four-page illustrated bulletin describing the improved "Dielectric" moisture meter, is issued by Tagliabue Instruments Division, Dep't 67, Weston Electrical Instrument Corp., 614 Frelinghuysen Ave., Newark 5, N. J. Bulletin tells advantages of this type of meter.

* * * *

Rayon cloth, new to the bulk packaging field, has been added to Chase Bag Co.'s regular line of textile bag products. It offers an excellent printing surface for direct multicolor brand printing.

* * * *

Burrows Equipment Co., 1316-D Sherman Ave., Evanston, Ill., is now handling "Multi-Clean" industrial vacuums and line of floor maintenance equipment and supplies. These vacuums are built for wet or dry pickup, eliminating the need of changing filters.

* * * *

C. M. Bindner, president of the Hammermills, Inc., division of Pettibone

NEW SHANZER PLANT

The H. M. Shanzer Co., manufacturer of "Berico" columnar grain and rice driers, elevators and conveying machinery, has just completed extensive remodelling of its plant and offices at 85 Bluxome St. in San Francisco. All Shanzer machinery is designed, built and shipped from this newly enlarged plant.

Shanzer has maintained its plant at 85 Bluxome St. since 1930 when the total space was 7,000 square feet. With the latest expansion the total plant capacity has been increased to 45,000 square feet.

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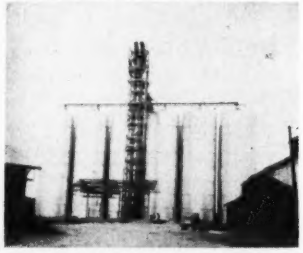
FIRM ADDS STORAGE



These are the new soybean storage tanks of Damon Headden & Son at Ridgely, Tenn. The firm added the tanks for storage of soybeans during the past season.

Mulliken Corp., Chicago, announces the completion of a new 1951 louvre plate hammermill that provides gradation of grind control without screens. It will efficiently grind a variety of products, including soybeans.

* * * *

The fifth annual Farm Forum is scheduled for Monday and Tuesday, Mar. 19 and 20, and the Radisson Hotel in Minneapolis, Minn. "Teamwork in World Crisis—Agriculture, Business and Labor," is the topic for discussion.

* * * *

A 12-page folder describes storage bins manufactured and erected by the Neff & Fry Co., 276 Elm St., Camden, Ohio. Distinctive feature of the bins is the diagonal-ended "super-concrete" stave. Folder names 86 flowable bulk materials that are handled in Neff & Fry bins.

* * * *

George N. Roberts, Jr., formerly in the accounting and auditing department of the Bemis Bro. Bag Co. general offices in St. Louis, has been appointed manager of the Bemis plant and sales division in Los Angeles.

* * * *

When the tug Carport and tanker barge G-1 recently sailed from Chicago to Buffalo and New York it carried what is believed to be the first dry-liquid cargo ever shipped on the lakes—a cargo of corn and soybean oil. Outfit is owned by Cargo Carriers, Inc., Cleveland, subsidiary of Cargill, Inc. Soybean oil was destined for New York City.

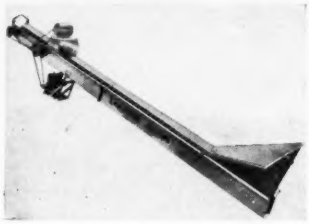
* * * *

Harrison Cropsaver Co., Champaign, Ill., has designed a special pickup reel to solve harvesting problems in areas where extra heavy crops are down and tangled. It can save practically any crop that cannot be harvested with ordinary equipment, says the company.

* * * *

Fred M. Mitchell has been placed in charge of Amsco's petroleum solvent sales for the up-state New York area, Edward M. Toby, Jr., president of American Mineral Spirits Co., announced. The appointment marks another step in Amsco's sales expansion to provide more complete coverage and service to industrial users of petroleum solvents and naphthas.

SEEDBURO ITEM



An elevator of many purposes is the Cardinal "Junior," a new product added to the grain handling line of Seedburo Equipment Co., Chicago.

A feature making the Cardinal All-Purpose Elevator an exceptionally versatile unit is the new type of motor mount. The elevators now come with assemblies for both overhead and underslung mounting. The motor can be switched readily from one position to the other without detaching it from the base.

The Cardinal "Junior" is made of rustproof aluminum alloy, and available in lengths of 12, 16 and 20 feet.

—s b d—

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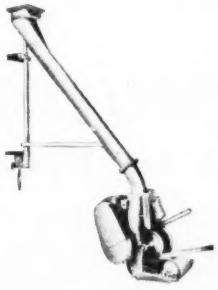

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Loads the longest box car to capacity, without hand trimming. Requires only part-time attention. Grain is thrown 25 to 35 feet. Trajectory of material can be raised or lowered with convenient lever. Will handle 40 to 80 tons per hour, depending on material. Price, $635.00. F.O.B. Aurora, Illinois

CARDINAL ALL-PURPOSE ELEVATOR

Made of rustproof aluminum alloy. Sturdy, easy to handle! Weight of 16-foot model is only a little over 100 pounds. New type of "over" or "under" motor mount. Heavy, corded-rubber flights. Lengths: 12, 16 and 20 feet — $144.50, $159.50 and $188.00, less power unit.

F.O.B. Columbia City, Indiana

STEINLITE MOISTURE TESTER

World's most popular tester. More than 16,000 now in use. Fast, accurate, reliable. Takes only one minute to make a test. Sample is saved, not destroyed. Tests more than 200 products ranging in moisture content from 2% to 50%. Fully guaranteed for one year. Sold on 10-day free trial basis. Model 105 . . . $330.00, F.O.B., Atchison, Kansas. Sold only by Seedburo.

BALDWIN JUMBO LOADER

Handles 2500 bushels of grain, and more, per hour. Can deliver a distance of 42 feet, and 27 feet in height.

Model 50-B, complete with engine and carriage, less tires and distribution tube. Just assemble and start loading. Built in 30, 36 and 42-foot lengths. Prices: $686.00, $736.00 and $786.00. Pulley and belt Model also available.

F.O.B. Wichita, Kan.

HYTROL FOLDING PORTABLE ELEVATOR

Can be quickly moved, even while in operation. Elevates to any angle by hydraulic control. Motor reversible for loading or unloading. Folds in half for easy handling. Built in 12, 14 and 16-foot models — $465.00, $525.00 and $560.00.

F.O.B. Milwaukee, Wisconsin

SEEDBURO CHICAGO

729 Converse Building, Chicago 6, Illinois

Sam D. Conger has been named southern sales representative for "Nodogen" inoculants, with headquarters in Atlanta, Ga., the Albert Dickinson Co., farm laboratory division, Chicago, announces. He represented Armour & Co. for several years in the Southeast.

* * * *

L. V. Butler, president of the Alabama Terminal Elevator Co., Mobile, Ala., has announced that work has started on a new 1.9-million-bushel elevator.

* * * *

Alhambra Grain & Feed Co., Alhambra, Ill., has added one Anderson Duo Expeller to its processing equipment.

* * * *

R. H. Norris, who has been district manager of Buckeye Cotton Oil Co. at New Madrid, Mo., has succeeded W. R. Flippin as district manager of the Buckeye plant at Memphis, Tenn. Flippin has been made manager of Buckeye's western division at Memphis.

* * * *

Announcement has been made by Mente & Co., Inc., textile bag manufacturers in New Orleans, of the following promotions: Marshall L. Harper, formerly assistant secretary-treasurer, has become assistant vice-president; J. Lucius McGehee is now assistant vice president in charge of research and development; while E. Reid Powell, plant manager, assumes in addition the title of assistant vice president in charge of production.

* * * *

The promotion of Bernard M. Blank to the position of assistant chief chemist has been announced by Food Research Laboratories, Inc., Long Island City, N. Y. He has been with the firm since 1941.

* * * *

Following a change in ownership, firm name of E. E. Frith Co., Dubuque, Iowa, has been changed to Dubuque Soy Products Co. New personnel include: Jack Edson, head buyer and sales manager; F. J. Beckwith, plant superintendent; and Cecil G. Johnson, plant manager.

GRAIN MOVED BY AIR

Bulk grain, moved pneumatically, at a rate of over 1,500 bushels per hour! This capacity record was established when Fords Pneumatic Grainvayor was given several capacity and grain breakage tests recently. Grainvayor is the flexible, new bulk grain handling equipment manufactured by the Myers-Sherman Co., Streator, Ill. Myers-Sherman is the first concern in the United States successfully to mass produce such a machine. Notice the speed at which the corn is being drawn into the flexible suction pipe.

Chase-Designed Pretty Print bags are available in colorful checks, plaids, florals, geometrics, and pastels. And, how thrifty housewives love 'em! They're becoming more and more popular every day! Get on the Band Wagon! Cash in on this demand now! Pack your products in Chase-Designed Pretty Print bags! Your Chase Salesman has samples and full details. Check with him . . . TODAY.

CHASE BAGS

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OKLAHOMA CITY • PORTLAND, ORE. • REIDSVILLE, N. C. • HARLINGEN, TEXAS • CHAGRIN FALLS, O. • HUTCHINSON, KAN. • CROSSETT, ARK • SAN FRANCISCO

WASHINGTON DIGEST

By PORTER M. HEDGE
Washington Correspondent for
The Soybean Digest

PRICE CEILINGS. Price ceilings on grains, including soybeans, are expected to come by spring, but not sooner. It will take the Economic Stabilization Agency at least until late February or March to get a staff in shape to handle general price controls.

The legal minimum ceiling for soybeans is likely to be in the neighborhood of $3.20 a bushel, Chicago. This is a rough working figure.

The Department of Agriculture is now working on the legal minimums. For soybeans, it had tentatively established the minimum at $3.12, Chicago, or $2.90 a bushel at the farm.

Since then, new price data have come in. Officials don't know just where the minimum will fall, but it may be around 5c to 8c a bushel higher than the original calculation.

In any case, the stabilization agency (ESA) will make the final decisions, both as to the level of the ceiling and the timing. The Department of Agriculture's present role is to make basic price studies, and to recommend to pricing officials.

At the turn of the year, ESA had no more than a bare, skeleton staff, hardly sufficient to answer the flood of inquiries on actions already taken, to say nothing of future probabilities.

In the meantime, USDA officials have been working on a set of policy recommendations for grain ceilings, which it hopes will be adopted.

The general plan is to start at country shipping points and work up, rather than working back from the prices of end products.

The local ceiling rate in the main soybean production areas will be figured on a differential in price between Chicago and the local point based on the past three- to four-year price history instead of a 10-year history as is now the case. This will also mean that local loan rates must be readjusted. At present it is figured that your local ceiling rate is 94c above the loan rate.

The same general plan would apply to corn and other grains. Corn price ceilings are probable at the same time they are established for soybeans.

The legal minimum ceiling for corn will have to be parity at the time it is established. If this comes in late March or early April, a national price lid of $1.68 to $1.70 a bushel is now indicated for corn. This allows for some increase in parity between now and spring.

Local corn ceilings—if the USDA plan is adopted—would be 21 cents a bushel over the 1950 county loan rate. This national rate for corn would reflect roughly $1.84 to $1.86 at Chicago.

It's pure guesswork now as to where ceilings will be established for soybean meal and oil. But you can speculate as to possible levels by using these rough assumptions:

Assume a corn ceiling at the above rate. This would indicate a ceiling on meal, bagged in carlots at Chicago, of around $77.50 a ton, based on the 20-year price relationship between the two, excluding war years. The Dec. 1 price of meal at Chicago was approximately $73 a ton.

Assume a ceiling on soybeans at Chicago of $3.20, an average allowance of 66 cents to cover freight, processing, etc., and a recovery of 9.8 pounds of oil per bushel of beans. This would indicate a ceiling on oil at Chicago of around 19 cents, or right at the Dec. 1 price.

Repeat: This is NOT official. Somewhat different bases might be used when ceilings actually come. But it serves as a rough guide.

The ceiling on meal could be a little lower, and the one on oil higher. However, the soybean ceilings can't be put too far out of line with cottonseed meal. Price of the latter has been running about $10 a ton higher than soybean meal.

HOLD-THE-LINE. The Administration is trying to hold the price line at close to the Dec. 1 levels. That's the significance of the new pricing standards announced late in December.

However, they apply in farm lines only to raw products whose prices were above the legal minimum ceilings. These were beef, veal, lamb, mutton, wool, cotton, cottonseed and fluecured tobacco. Other major products were either below parity, or below the highest level for May 24-June 24.

The pricing standards do not apply to farmers during the interim until general price controls are established. The standards do apply to farm products, from the processor on up.

The significant point is the attempt to hold dollars and cents margins at no higher than June 1950,

levels, unless higher costs can be proved. If margins are raised above the June level without establishing a case for higher costs, the Administration threatens to roll them back when mandatory controls go into operation.

It's a holding operation, the aim being to prevent if possible price increases in end products until a price control organization can be established.

1950 GOALS HIGH. This year will be another of all-out production for soybeans as far as "production goals" of the Department of Agriculture are concerned.

USDA officials want about the same acreage in beans this year as in 1950—a harvest of around 13.2 million acres. The question is how to get it.

Soybeans, corn, and cotton are considered the key crops this year. The problem is how to get enough acreage of each, without a big plow-up of pastures.

In the principal corn producing counties, an increase of 7 to 8 million acres is wanted in corn this year. With a large increase also wanted in cotton acreage, officials are wondering if soybean acreage will be big enough.

Acreage allotments are now out the window, even for crops on which they have been announced, including wheat and corn. Surpluses are a thing of the past. Should the weather turn bad this year, a very serious feed shortage would result.

In fact, the National Planning Association recommends a storage policy that anticipates the possibility of a series of grain crops well below those of recent years.

It recommends a united food reserve policy as well as a united military policy among Atlantic Pact nations. It proposes increasing the corn carryover this year by 200 million bushels, if necessary by purchase of corn for additional stockpiling. It advocates an increase in the wheat reserve of 100 million bushels.

U. S. GRADES. It will be around April 1, officials think, before Production and Marketing Administration makes a decision on the new soybean standards proposed by the American Soybean Association and the National Soybean Processor's Association.

Public hearings on the proposed standards will be held in late January and early February by Robert H. Black, of PMA's grain branch.

There is no way of telling yet whether the proposed new standards will be adopted. As in most cases of this kind officials are divided on the proposal, and in any case cannot make commitments until after hearings.

—s b d—

SOIL, PLANT CONTENT

The amino acid content of several forage plants has been found to vary widely according to the inorganic composition of the substrate upon which the synthesizing plants are grown. V. L. Sheldon, W. G. Blue, and W. A. Albrecht, University of Missouri, reported these findings to the recent joint meeting of the American Society of Agronomy and the Soil Science Society of America at Cincinnati, Ohio.

A microbiological assay for nine of the ten amino acids required by the white rat was run on alfalfa, soybeans, redtop, and sudan grass. The synthesis of methionine was inhibited when sulfur was withheld.

The formation of tryptophan was found to be proportional to the available boron, when this anion was the limiting element in the culture solution. If magnesium, boron, manganese, and iron were withheld from the solutions offered alfalfa and soybeans, tryptophane synthesis decreased.

O. J. Burger, West Virginia University, and S. M. Hauge, Purdue University, pointed out that manganese fertilization increased the carotene content of the leaves of soybeans, corn, wheat, and oats. It significantly increased the carotene-destroying enzyme activity, the protein content, and the tocopherol content of soybean leaves. The protein content of the soybean stems was decreased.

IN THE MARKETS

Further Advance in Markets

Markets again were dominated by war jitters and uncertainty over the government's price control moves in December. Fears and rumors of various sorts kept them in a nervous state.

But prices moved upward most of the month, and beans, meal and oil all found new high ground for the 1950 crop. A good demand for meal and oil with prices making for a good conversion ratio sustained the soybean market.

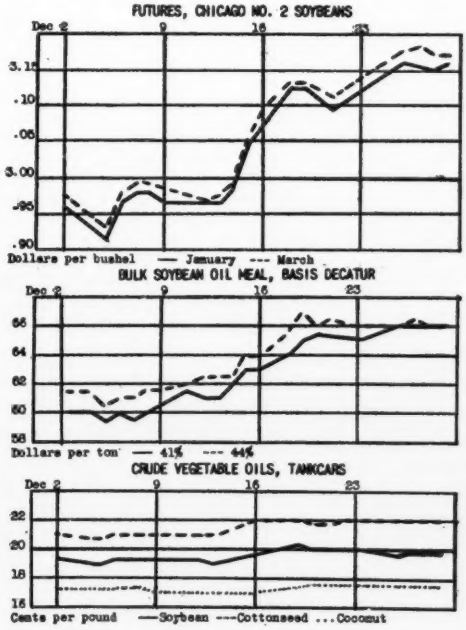
Production of soybean oil meal was heavy. This was especially true of 44% protein meal. It was reported that 40 million bushels of soybeans were processed the first two months of the season, making for heavy inroads on processor supplies.

Country marketings of soybeans were light the fore part of the month, but beans began to move to market the last of the year as producers sold to avoid higher income taxes.

The big unsettling factor was uncertainty over the international situation and over just when and at what price level government controls would be established. The announcements of pricing standards for business and of the voluntary rollback to Dec. 1 price levels created great confusion in the markets.

Tendency of buyers to wait until the situation was clarified accentuated the normal dullness of holiday markets.

The sum of 4 million dollars was allocated to Italy, Belgium, Norway and Denmark for the purchase of soybeans and other oilseeds, it was reported. Japan was given allocations to buy 100,000 tons of soybeans, it was



also reported. And a Greek purchase of 1,000 tons of soybean oil was confirmed.

January No. 2 soybeans opened for the month at $2.96 and closed at $3.16. Low was $2.91½ Dec. 5; and high was $3.16 Dec. 26 and 29.

Bulk soybean oil meal, 44% basis Decatur, opened at $61.50 and closed at $66. Low was $60.50 Dec. 5; the high $67 Dec. 19.

Crude soybean oil in tankcars opened for the month at 19¼c and closed at 19¾c. Low was 19c Dec. 4, 5 and 13; high 20¼c Dec. 19.

MEMPHIS SOYBEAN OIL MEAL FUTURES CLOSINGS DEC. 29*
Decatur sacked basis, per ton: Jan., 70.75 @ 71.00; Mar., 70.75 @ 71.00; May, 71.40 @ 71.50; July, 72.15 @ 72.40; Oct., flat 64.20. Sales: 7,500 tons.

NEW YORK SOYBEAN OIL FUTURES CLOSINGS DEC. 29*
Closings: Jan., 19.45b; Oct., 17.40b; Dec. '51, 17.00b. Total sales: 155 contracts.

CHICAGO SOYBEAN OIL FUTURES CLOSINGS DEC. 29*
Jan., 19.30b @ 19.50a; Mar., 18.40; May, 18.18; July, 18.12; Sept., 17.90b @ 17.95a; Oct., 17.35b @ 17.38a.
a—Asked. b—Bid.
*Reported by the Chicago Journal of Commerce.

The New York Produce Exchange has announced that trading in a new soybean oil futures contract, to be known as the "D" or "Demand" contract started Jan. 2.

The contract which will begin with the Mar. 1951 shipment calls for either warehouse or track delivery, but will not replace the present "Warehouse," or "W" contract, which provides for delivery by warehouse receipt only.

The "D" contract was instituted at the request of the trade, and is designed to expediate the delivery of prime crude soybean oil, which is the same grade now deliverable on the present "W" contract.

● **FACTORY USE SOYBEAN OIL.** Factory production of crude soybean oil in October totaled 189,988,000 lbs., reports Bureau of the Census. Production in September was 137,695,000 lbs.

Factory consumption of crude soybean oil in October was 164,751,000 lbs.; in September, 158,345,000, according to revised estimates.

Factory production of refined soybean oil in October was 152,890,000 lbs.; in September, 145,546,000 lbs. Factory consumption of refined soybean oil in October was 156,192,000 lbs.; in September, 149,258,000 lbs.

Factory and warehouse stocks of crude soybean oil totaled 65,874,000 lbs. Oct. 31, compared with 53,358,000 lbs. Sept. 30. Stocks of refined soybean oil were 51,201,000 lbs. Oct. 31; 60,116,000 lbs. Sept. 30.

Crude soybean oil entered into the following uses in October: soap 134,000 lbs.; paint and varnish 405,000 lbs.; lubricants and greases 41,000 lbs. and other inedible products 1,671,000 lbs.

Refined soybean oil was used as follows in September: shortening 62,203,000 lbs.; margarine 3,047,000 lbs.; other edible uses 5,258,000 lbs.; paint and varnish 6,900,000 lbs.; lubricants and greases 15,000 lbs.; other inedible uses 4,779,000 lbs.

Hydrogenated edible soybean oil was used as follows in October: shortening 19,950,000 lbs.; margarine 26,947,000 lbs.; and other edible uses 554,000 lbs.

● **SHORTENING SHIPMENTS.** Reported by the Institute of Shortening and Edible Oils, Inc., in pounds.

Week ending Nov. 23	6,135,965
Week ending Dec. 2	6,710,734
Week ending Dec. 9	4,961,642
Week ending Dec. 16	6,024,734
Week ending Dec. 23	5,173,244

Grand total of shortening and edible oil shipments for the third quarter 1950 was 906,694,000 lbs. Total of shipments for October was 235,427,000 lbs.

● PROCESSING OPERATIONS. Reported by Bureau of Census, Department of Commerce, for September, October.

PRIMARY PRODUCTS EXCEPT CRUDE OIL, AT CRUDE OIL MILL LOCATIONS: PRODUCTION, SHIPMENTS AND TRANSFERS AND STOCKS, OCTOBER 1950—SEPTEMBER 1950

Products	Production		Shipments and transfers		End of month stocks	
	Oct. 1950	Sept. 1950	Oct. 1950	Sept. 1950	Oct. 31, 1950	Sept. 30, 1950
SOYBEAN:						
Cake & meal†	450,886	318,339	444,857	332,297	41,253	35,224
Lecithin‡	1,213,739	1,094,649	1,191,468	1,222,180	369,038	346,767
Edible soy flour full fat†	409	488	(*)	514	(*)	117
Edible soy flour other†	4,644	4,789	4,879	4,800	930	1,165
Industrial soy flour†	1,644	1,456	1,973	(*)	331	660

* Not shown to avoid disclosure of individual operations.
† Unit of measure in tons. ‡ Unit of measure in pounds.

SOYBEANS: RECEIPTS, CRUSHINGS AND STOCKS AT OIL MILLS, BY STATES OCTOBER 1950—SEPTEMBER 1950
(Tons of 2,000 pounds)

State	Receipts at mills		Crushed or used		Stocks at mills	
	Oct. 1950	Sept. 1950	Oct. 1950	Sept. 1950	Oct. 31, 1950	Sept. 30, 1950
U. S.	2,272,819	213,423	584,257	409,017	1,763,070	74,508
Arkansas	106,892	6,089	13,689	3,763	95,558	2,355
Illinois	834,694	96,099	241,045	169,517	619,667	26,018
Indiana	(*)	(*)	51,102	41,105	215,470	(*)
Iowa	339,900	25,695	92,023	72,045	258,200	10,323
Kansas	(*)	5,812	13,048	2,139	23,436	(*)
Kentucky	61,399	(*)	14,488	14,367	48,137	1,226
Minnesota	42,643	10,871	18,513	15,288	25,006	876
Missouri	106,255	8,901	23,041	16,561	91,751	8,537
Nebraska	(*)	(*)	3,949	(*)	23,864	(*)
N. Carolina	3,898	(†)	1,367	(*)	2,635	104
Ohio	209,608	11,896	62,199	54,929	151,884	4,475
Oklahoma	15,029	—	3,743	—	11,286	—
Texas	2,896	(*)	(*)	—	2,553	(*)
All other	549,605	48,239	46,050	19,303	193,623	20,594

* Included in "All other" to avoid disclosure of individual operations.
† Receipts exceeded by reshipments of beans previously received and held in the State. U. S. receipts are on a net basis, excluding transfers between mills.

SOYBEAN PRODUCTS: PRODUCTION AND STOCKS AT OIL MILL LOCATIONS, BY STATES, OCTOBER 1950—SEPTEMBER 1950

State	Crude oil (thousand pounds)				Cake and meal (tons)			
	Production		Stocks		Production		Stocks	
	Oct. 1950	Sept. 1950	Oct. 31, 1950	Sept. 30, 1950	Oct. 1950	Sept. 1950	Oct. 31, 1950	Sept. 30, 1950
U. S.	189,988	137,695	29,922	†19,959	450,886	318,339	41,253	35,224
Arkansas	3,411	1,117	537	†300	10,425	3,112	1,512	374
Illinois	82,435	58,997	8,147	5,056	179,643	126,088	12,429	14,768
Indiana	16,236	13,938	2,445	1,459	39,905	32,451	1,721	6,007
Iowa	29,828	24,086	5,498	4,057	73,840	58,737	4,631	2,864
Kansas	4,357	720	1,055	305	10,249	1,594	935	(*)
Kentucky	5,045	4,883	(*)	421	10,922	10,376	292	890
Minnesota	5,232	5,030	1,663	1,143	15,285	12,678	781	834
Missouri	6,977	5,039	1,388	1,289	18,231	12,836	1,383	1,916
Nebraska	1,173	(*)	503	(*)	3,323	(*)	(*)	(*)
N. Carolina	375	(*)	195	(*)	1,062	(*)	(*)	584
Ohio	20,585	18,154	4,577	3,488	48,679	44,336	3,355	1,248
Oklahoma	1,055	—	(*)	—	3,069	—	2,440	(*)
Texas	(*)	—	(*)	—	(*)	—	318	(*)
All other	13,279	5,731	3,914	2,441	36,253	16,131	11,456	5,739

† Revised.
* Included in "All other" to avoid disclosure of individual operations.

● INSPECTIONS.

Inspected receipts of soybeans during October, the first month of the 1950-51 season, were relatively heavy and well above average for the month, though somewhat below those of October a year ago, according to reports to the Department of Agriculture. October receipts totaled 39,130 cars compared with 44,153 cars for October last season and 29,107 cars the 9-year (1941-49) average for the month of October.

October marketings of soybeans were of lower quality than a year ago, due in part to a late season and unfavorable harvesting conditions early in the month. Seventy-four percent graded No. 2 or better in October compared with 86 percent in October last season and 82 percent the 1941-49 October average.

Inspections of soybeans in October included the equivalent of 1,499 cars inspected as cargo lots and about 1,531 cars as truck receipts.

Inspected receipts of soybeans dropped sharply in November to a total of 20,998 cars. November inspections brought the total for the first two months of the current season to 60,128 cars compared with 56,585 cars for the same period last season. The 9-year (1941-49) for the month of November was 15,165 cars.

The quality of the soybeans inspected in November was somewhat above last year and the average. Seventy-one percent graded No. 2 or better in November compared with 57 percent in November last year and 66 percent the 9-year average.

Inspections of soybeans in November included the equivalent of 2,816 cars inspected as cargo lots and 5,318 cars as truck receipts.

● **SOYBEAN GLUE.** Consumption of soybean glue by the softwood plywood industry in October totaled 4,455,000 lbs. compared with 4,209,000 lbs. in September; and 3,493,000 lbs. in Oct. 1949. reports Bureau of the Census.

Consumption of phenolic resin glue in October was 4,157,000 lbs.; and consumption of all glues by the industry was 9,984,000 lbs.

Stocks of soybean glue Oct. 30 totaled 2,145,000 lbs. compared with 2,591,000 lbs. Sept. 30; and 1,581,000 lbs. Oct. 31, 1949.

● **SOYBEAN STOCKS.** Production and Marketing Administration's commercial grain stock reports.

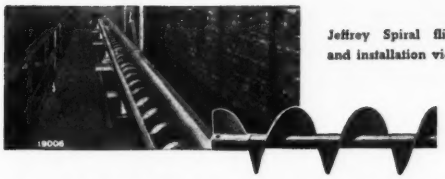
	Dec. 5	Dec. 12	Dec. 18	Dec. 26
Atlantic Coast	1,454	1,599	1,356	1,197
Gulf Coast	602	290	1,163	297
Northwestern and Upper Lake	1,579	1,576	1,561	1,553
Lower Lake	6,434	5,884	5,553	5,914
East Central	3,072	3,003	2,795	2,723
West Central				
Southwestern & Western	2,934	2,963	2,865	2,522
Total current week	16,075	15,315	15,293	14,206
Total year ago	15,711	16,282	17,013	16,014

● **PRICE SUPPORT.** The U. S. Department of Agriculture has announced that through October farmers had put 3,503,772 bushels of soybeans under Commodity Credit Corp. price support.

Of this amount, 856,273 bushels were stored on the farm under loans; 2,524,408 bushels were warehouse stored under loans; and 123,091 bushels were under purchase agreements.

● **MARGARINE PRODUCTION.** Total production of margarine in October was 73,940,000 lbs. compared with 64,829,000 lbs. in September, reports Bureau of the Census.

Production of uncolored margarine in October was 23,808,000 lbs.; of the colored product 50,132,000 lbs.



Jeffrey Spiral flight and installation view.

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Says Annual Carryover of Beans Needed

TO THE EDITOR:

We are convinced that there is one factor which could accomplish more toward increased use of soybean oil meal than all the conversation, data, and advertising in the world could accomplish.

This one important factor in our opinion is a crop large enough to provide a year-to-year carry-over so that these year-end tight situations with consequent high prices can be minimized.

You will recall that last summer, soybean oil meal reached prices as high as $100 per ton, at a time when soybeans reached the price of $3.65 per bushel. It is true that speculators and Commodity Credit Corporation were the only beneficiaries of this price run-up, yet the soybean industry, including growers, paid a high price later for this temporary inflation.

When soybean oil meal reaches such high prices, induced by scarcity, our best customer, the feed manufacturing industry, is forced to turn to other sources of protein. They are, thereafter, reluctant to return to soybean oil meal again until soybean oil meal prices have again reached a point of substantial discount under the replacements.

It is unfortunate for the grower that this chain of events must take place each year in such order.

We believe it can be assumed that the feed industry is well aware of the qualities of soybean oil meal. The industry's annual use of more than 4 million tons of soybean oil meal confirms that the feed industry is aware that the soybean processing industry is producing a product of high quality.

We are hopeful that before long the soybean industry will don long trousers, and stop irritating its best customer with its annual year end hysterics.—*W. E. Huge, vice president, Central Soya Co., Inc., Fort Wayne, Ind.*

Mr. Huge's letter was written in May 1950 so the prices referred to are for 1949. He states in a later letter: "As you will recall the price of soybean meal this year was not maintained at high levels past the early part of August and the industry so far during the early part of the new crop year has not had the usual difficulty in disposing of its soybean oil meal production. While nearby shipment has at times been at a nominal discount the problem so far this year has not been of serious proportion."—Editor.

Pioneered Soya Products

TO THE EDITOR:

My membership is due to expire in January, 1951 and I am going to drop out of the Association.

For over 10 years I have been completely out of touch with soybean matters, although I have always read my publications, in fact believe I have every issue ever since I joined and some years are even bound volumes.

In and around Philadelphia at least back in 1936 and '37 when I first became interested in the soybean and its prospects I was virtually all alone in trying to stir up enthusiasm and create a demand for soya products. I dabbled in soya flour, soya beans, cookies, soya oils, grits, etc., selling on commission, selling on my own account and finally started a small company called the Protein Products Co. It was a one-man affair in which I did all the work, took no pay but merely reimbursed myself for expenses. Finally it reached the stage where it was either a case of getting real money or getting out and it had to be the latter. What few assets we had were distributed to a mere handful of stockholders and we called it a day.

I have lived to see my predictions come true. However it has never been my privilege to attend meetings and with this passage of time and all my activities centered in other work, I just have to give up soybean matters.

Now in leaving the Association, I extend to all my best wishes for continued success and growth of your organization, it is a wonderful work you are doing for all Americans.—*Jacob G. Grauer, Glenside, Pa.*

Finds No Evidence of Harm from Sprays

TO THE EDITOR:

We have been getting together some analytical figures on soybeans combined from fields which have been sprayed with pentachlorophenol formulations.

It has been our feeling that because of the protective pod on soybeans that there is very little likelihood of pentachlorophenol being present on the soybeans themselves. However, no matter how we feel in this matter it is necessary to have analytical information that will either prove or disprove the theory. With this in mind a series of experiments were carried out this fall spraying varying amounts of pentachlorophenol on test plots by plane. Samples were taken from each one of the test plots and we have now made pentachlorophenol determinations on each of these samples.

Our analytical laboratory, on 10 samples of material, has found pentachlorophenol in amounts varying between 0.6 and 1.0 p.p.m. One sample was reported to contain 1.4 p.p.m. pentachlorophenol. There is a very slight amount of interference from naturally occurring substances in soybeans and hence it is our feeling that the amounts reported are absolute maximums. There is the possibility that the actual true figure may be very slightly less.

We have checked the reliability of the method by taking soybeans from unsprayed fields which had never been near pentachlorophenol and adding pentachlorophenol in known amounts directly to the beans and then trying to determine the amount added by analysis. We were able, by using this procedure, to determine the amount present within about 0.2 p.p.m That is, if we added 2.0 p.p.m pentachlorophenol to the beans we obtained either 2.0 or 2.2 p.p.m.

These figures would indicate that the residual amount on the beans is extremely low and hardly sufficient to cause much worry.

We are outlining other work which will be carried out this winter, on the same samples of beans, which will include removing the oil from the beans and processing it to a number of finished products; making analytical studies; and taste and flavor studies all the way through. Other analytical studies will also be made to determine the amount present on the foliage.—*R. W. Towne, development department, organic chemicals division, Montsanto Chemical Co., St. Louis 4, Mo.*

LETTERS

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